THE JOURNAL
of the American Medical Association
Published Under the Auspices of the Board of Trustees
VOL. 147, NO. 7 CHICAGO, ILLINOIS OCTOBER 13, 1951
COPYRIGHT, 1951, BY AMERICAN MEDICAL ASSOCIATION

ALLERGY THERAPY

SOME COMMON MISCONCEPTIONS

Samuel M. Feinberg, M.D., Chicago

CHAIRMAN'S ADDRESS

Much progress in research is needed to improve and extend benefit to the 10 million or more allergic persons in this country. Nevertheless, with full utilization of present knowledge and methods the majority of these can be benefited. Only a small percentage of these are receiving the full benefit of available therapy. There are a number of reasons why the remaining millions fail to obtain results, and most important among these reasons is the fact that misconceptions concerning etiology, diagnosis, and therapy are prevalent both in the ranks of the medical profession and among the public. Full correction of these false notions and complete utilization of present-day knowledge of allergy can only come as a result of proper education of the profession,[1] beginning with student days and continuing later, and with the education of the public through adequate channels.[2] Here I can only discuss briefly some of the common misconceptions concerning the therapy of allergic manifestations.

COMMON MISCONCEPTIONS

1. *Allergy Is a Fad and Its Concept Unnecessary in Therapy.*—The concept of allergy has been with us about half a century and knowledge of allergic causes has been available for one or two centuries. The concept of allergy is being extended to new spheres of medicine, particularly the infectious diseases. Certain phases of allergy as interpreted and publicized by a few are definitely faddish, but these should not be confused with the major and accepted facts. It has been amply proven in series of allergic patients in whom the indicated steps in allergic therapy can be carried out to completion that the results are infinitely better and more lasting than with symptomatic management.

2. *Every Positive Skin Reaction Calls for Desensitizing Injections.*—It is generally agreed among specialists that hypodermic desensitization with food extracts is neither necessary nor advisable. Such allergy is usually handled by avoidance or by oral desensitization. If a food substance acts as an inhalant (as wheat flour for a baker), desensitization by injection is a reasonable procedure. In the case of many inhalant substances, such as feathers, dog hair, orrisroot, and some others, elimination of the air-borne substance is the more rational procedure. With some unavoidable substances, such as pollen, mold spores, and dust, desensitizing treatment is, of course, usually indicated.

3. *A Positive Skin Test Requires at Least That the Particular Antigen Be Avoided by the Patient.*—This fallacy is based on a prevailing belief that a positive skin test to an antigen means only one thing—that the patient's complaint is due to that substance. Adherence to this belief has resulted in more mismanagement of allergy and greater discredit to the field than practically any other misconceived notion. Let us examine then the possible interpretations of a positive skin reaction.

A positive skin reaction to a particular antigen may signify that the sufferer's complaint is due to that substance, but it may also be explained by a number of other possibilities, either of immunologic or nonimmunologic nature. Among possible interpretations of the true immunologic skin reaction are the following: There may be an associated clinical allergy of which the patient may have made no complaint. For example, a patient presenting himself for asthma may have a positive skin test to onion. By subsequent developments it may turn out that the elimination of onion from the diet has cleared up long standing gastrointestinal symptoms, of which the patient has not made any mention, while the asthma has remained unaffected by this procedure. Subclinical allergy is a common phenomenon. Many true immunologically positive skin reactions fail to be substantiated

From the Department of Medicine, Northwestern University Medical School.
Read before the Session on Allergy, Section on Miscellaneous Topics, at the One Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

1. Cooke, R. A.: Allergy in Theory and Practice, Philadelphia, Saunders, 1947. Feinberg, S. M., and others: Allergy in Practice, ed. 2, Chicago, The Year Book Publishers, Inc., 1946. Tuft, L.: Clinical Allergy, ed. 2, Philadelphia, Lea & Febiger, 1949. Unger, L.: Bronchial Asthma, Springfield, Ill., Charles C Thomas, Publisher, 1945. Vaughan, W. T.: Practice of Allergy, ed. 2, St. Louis, C. V. Mosby Company, 1948.
2. Feinberg, S. M.: Allergy: Facts and Fancies, New York, Harper & Bros., 1951. Swartz, H.: Your Hay Fever, New York, Funk & Wagnalls, 1951.

by clinical sensitivity. While this can occur with inhalant substances, it occurs much more commonly with foods. One of the reasons for this situation with respect to foods is the fact that digestion destroys a large part of the antigenicity of these substances. In other instances the degree of allergic sensitivity never reaches a stage when the amount of antigen to which the allergic person is exposed under normal conditions is sufficient to produce a clinical effect. A positive skin test may denote not a present but a future clinical allergy. For example, not infrequently in testing a patient for a chronic or nonrespiratory allergic complaint one obtains a positive reaction to ragweed pollen. Although the patient has no history of seasonal symptoms, subsequent observation indicates that usually such a person will display seasonal hay fever within the next one or two seasons. Sometimes a positive skin reaction may denote a past clinical allergy. A child who had had eczema caused by egg may still show a positive skin reaction to that food, even though it is now tolerated clinically. A patient who has been successfully immunized to pollen will still show a positive skin reaction to the same pollen. Finally, it is to be remembered that skin reactions (and clinical allergy) follow the pattern of biologic relationships. Because mustard is biologically and antigenically related to cabbage, a child who reacts to the latter may also react to the former without ever having come into contact with it. The hay fever patient sensitive to ragweed will react by skin test to goldenrod and daisy pollen, even though he has never been exposed to the latter because they are insect-borne. The dog-hair sensitive person will show a skin reaction to fox or wolf dandruff, and the grass-pollen sensitive person residing in the Middle West will get a positive skin test to Bermuda grass, even though the latter is a thousand miles removed from his respiratory system.

There are several reasons for false or nonimmunologic positive skin tests. Certain substances are inherently urticariogenic and on skin test will produce an urticarial wheal indistinguishable from a true immunologic reaction. Among such substances are histamine, codeine, morphine, atropine, and acetylcholine. This response is produced in every person. And yet one encounters laboratory reports in which the referring physician is advised that on the basis of skin tests the patient is found allergic to codeine or to histamine. Incidentally, as determined by my colleagues and me from an extensive series of observations, even the quantitative response to histamine is no different in the allergic person. Testing extracts may be chemically irritating. This is true particularly of certain foods, and with many extracts procedures of purification must be instituted. To safeguard against this type of false reaction, the extract must be shown to be incapable of producing a wheal on the skin of several persons. Dermographism is another source of misinterpretation. Welting of the skin from the mechanical stimulation of the performance of the skin test occurs in about 5% of all persons and is not dependent on an allergic factor. The inexperienced operator will usually give an opinion that such a patient is allergic to virtually everything. This interpretation may result in the extreme measure of employing highly restricted diets or in complete neglect of allergic management because of the presumed hopelessness of the situation. There are ways of combating this obstacle, such as the use of antihistamines,[3] gentle technic, and testing by passive transfer technic. And finally, rough manipulations and poor technic, such as the intradermal injections of large volumes of the antigen, may result in irritative reactions which are interpreted as true positive skin tests.

4. *If Skin Tests Are Negative, the Complaint Is Not Allergic, or Allergy Management Is Not Possible.*—It is essential that other possible interpretations of a negative skin test be appreciated. The causative allergen may not have been used in testing because of inadequate choice of testing materials, an incomplete history, or lack of development and progress in special phases of the etiology of allergic manifestations. Twenty years ago mold allergy was virtually never diagnosed, and many patients with seasonal hay fever and asthma had negative skin tests to everything else because mold antigens were not employed. The same patients today show positive reactions. Several years from now perhaps other antigens will be in the same position that mold antigens are today. However, I would like to stress the importance of full utilization of the present available knowledge of allergic causes in order to increase the incidence of correct diagnoses and proper treatment.

Certain substances virtually never produce positive skin reactions in spite of the fact that they are known to produce the most violent types of allergic manifestations. Among these substances are simple chemicals or drugs. As a good example, one may mention allergy to such drugs as acetylsalicylic acid or acetophenetidin (phenacetin). Severe asthma, at times fatal, may result from a tablet of acetylsalicylic acid, and yet a skin test in such a case is always negative.[4] While the current explanation of the failure of such drugs to react on skin test is that they are composed of small molecules (haptens) incapable of reacting until they combine with large molecules (proteins in the body),[5] preliminary findings of negative tests with conjugates of acetylsalicylic acid [6] do not substantiate this concept. The practical point to remember is that a negative test with acetylsalicylic acid, acetophenetidin, antipyrine, and many other drugs is meaningless and misleading and may give the patient and physician a sense of false security which may be fatal. Indeed, it should be one of the sure signs of ignorance of allergy and the general unreliability of the report if it indicates that tests have been made with such substances.

Perhaps even more difficult to comprehend is the fact that certain types of allergic conditions, although definitely known to be caused by specific agents, usually fail to give skin reactions to these substances. Most prominent of these manifestations are the urticarial dermatoses and the "serum sickness" type of reaction which occur several days after the administration of serum, penicillin, sulfonamides, and other therapeutic materials. A nega-

3. Feinberg, S. M., and Friedlaender, S.: Relief of Dermographism and Other Urticarias of Histamine Origin by a Synthetic Benzhydryl Alkamine Ether, J. Allergy **16**: 296, 1945.

4. Cooke, R. A.: Allergy in Drug Idiosyncrasy, J. A. M. A. **73**: 759 (Sept. 6) 1919. Lamson, R. W., and Thomas, R.: Some Untoward Effects of Acetylsalicylic Acid, J. A. M. A. **99**: 107 (July 9) 1932. Friedlaender, S., and Feinberg, S. M.: Aspirin Allergy: Its Relationship to Chronic Intractable Asthma, Ann. Int. Med. **26**: 734, 1947.

5. Landsteiner, K.: The Specificity of Serological Reactions, ed. 2, Cambridge, Mass., Harvard University Press, 1945.

6. Feinberg, A. R., and Malkiel, S.: Aspirin Sensitivity—Experimental Studies, J. Allergy **22**: 74, 1951.

V 147
1951

tive skin test to such a drug is usual before or after such an allergic syndrome has occurred and should in no way mislead the physician. It is difficult to understand this seeming paradox. Other discrepancies may possibly be explained by the phenomenon of localized allergy. Conceivably a nasal mucous membrane may be allergic to the circulating proteins or polypeptides of a specific food (wheat, for example); whereas, the skin may not be sensitive and thus fail to react. It is in such and similar situations when observation and common sense can be more important than skin tests. Observing closely the possible relationship of meals to the onset of symptoms, the relationship of environment to the fluctuation of the syndrome, and the prescribing of planned diets not infrequently will change a situation of seeming hopelessness to a successful outcome.

There are a number of other explanations for negative skin tests in the presence of allergy. The type of test done must be appropriate. Making patch tests for atopic dermatitis or asthma or making scratch tests for contact dermatitis certainly sounds foolish, and yet I have a number of times encountered such attempts. The condition of the patient is important. The use of epinephrine, ephedrine, or antihistamines several hours prior to testing may diminish or possibly prevent the test from reacting. The atrophic, aged, or eczematous skin may fail to react well. At times in the early phases of clinical allergy the skin fails to have antibodies capable of reacting; whereas, several months or a year later such skin reaction occurs.

One of the most prolific and yet unnecessary sources of negative skin tests is the use of poor materials or poor technic. Potent extracts are essential, and they should be proven by the manufacturer to be capable of giving positive tests in known sensitive patients and negative in control persons. Many a diagnosis is missed because the scratch does not go through the skin to the dermis or vascular layer.

5. *The Laboratory or Pharmaceutical House Can Furnish a Treatment Set Based on the Number of Pluses of the Reacting Antigens.*—Such requests are common, and I have frequently had the privilege of examining them. A typical order may be worded as follows: "My patient reacts +++ to oysters, ++ to green pepper, ++ to timothy and Bermuda grass, +++ to dandelion, +++ to short ragweed, ++ to giant ragweed, + to dog hair, +++ to perch, +++ to house dust, and ++ to cocklebur. Please send me a treatment set with the proper proportions of these." Such requests indicate a total lack of understanding of the principles of allergy. Foods and other antigens which can be avoided (oyster, pepper, dog hair, fish) should be eliminated. Foods should not require hypodermic desensitization (unless they are inhalants). Dandelion is insect-pollinated, and Bermuda grass may be a thousand miles removed from the patient. The patient's symptoms and season (which were not stated in the order) determines which inhalant is required for desensitization. Pollen from different seasons should not be put into the same mixture, since the proportionate doses in such a mixture are inflexible and do not allow the modifications necessary at different times of each season. The number of pluses may indicate relative degrees of sensitivity, but not necessarily so. If the patient has a greater reaction to one antigen than to another, it should be obvious that he could probably tolerate by injection a lesser rather than a greater amount of this substance. The only practical rule for proportions is to be guided by the degree of exposure. The less the degree of exposure the less the maximum dose required to produce clinical results. Thus, in the particular case cited, if the patient has fall hay fever and if he is from Chicago, for example, where giant and short ragweed are equally important and where what little pollen is produced by cocklebur is sufficiently covered by the closely related ragweed antigen, the mixture would be equal parts each of giant and short ragweed.

6. *A Preformed Desensitizing Schedule Will Be Adequate for Each Person.*—Allergic persons have differing degrees of sensitivity and differing propensities in the acquisition of tolerance by desensitization. The final dose in one patient may of necessity be about as little as the beginning dose of the average. Many allergic patients have ceased treatment because of violent and sometimes hazardous constitutional reactions arising from the failure to recognize this principle.

7. *A Short Course of Desensitization Will Cure an Allergy.*—This erroneous concept arose from the observation of the relative ease with which a laboratory animal may be desensitized. Desensitizing therapy is very much worthwhile, but the physician and patient should accept the facts that it is a long process, may be only partial, and when the results are complete the effect may wear off after a variable period.

9. *In Asthma and Other Manifestations Commonly Classified as Allergic Only Allergic Factors Need Be Considered.*—In asthma, for example, there are other than allergic types, such as cardiac asthma and bacterial asthma. But the most important consideration involved here is the fact that a variety of nonspecific factors initiate, aggravate, and complicate allergic syndromes. Cold air in asthma, mechanical irritation of clothing in eczema, chemical irritation of soft-coal smoke in allergic rhinitis, chemical irritation of soap and water in allergic dermatitis, respiratory infections in asthma, and psychogenic factors [7] in all allergic manifestations are examples of these predisposing causes. Not only do they frequently need attention but sometimes their management is more important than the specific allergic factor. This is particularly applicable when an allergic etiology cannot be identified.

9. *The Antihistamines Are Effective in All Kinds and Stages of Allergy.*—The antihistamines produce very little benefit in asthmatic conditions compared with ephedrine, epinephrine, aminophylline, iodides, and related drugs. They are not to be trusted in allergy emergencies, such as immediate serum reactions. They are totally ineffective in bacterial allergy, tuberculosis,[8]

7. Abramson, H. A.: Somatic and Psychiatric Treatment of Asthma, Baltimore, Williams & Wilkins, 1951.

8. Millner, T., and Hurst, A.: Tuberculosis and Antihistaminics, Dis. Chest **16**: 870, 1949. Judd, A. R., and Henderson, A. R.: The Use of Antihistaminic Drugs in Human Tuberculosis: Preliminary Report, Ann. Allergy **7**: 306, 1949.

colds,[9] and for the most part in collagen diseases. In the types of allergic conditions in which the antihistamines display their greatest efficacy, namely, hay fever and urticaria, these drugs are by no means helpful in many severe cases, in certain stages, and in some persons even with the mildest type of manifestation.[10] As a corollary, they do not eliminate the necessity for specific diagnosis and procedures of desensitization to or avoidance of allergens.

10. *Corticotrophin and Cortisone Are Curative or Have Eliminated the Need for Allergy Management.*—The dramatic results obtained with the use of corticotrophin (ACTH) and cortisone in some of the allergic states [11] have created a feeling in many places that at last there is a single cure for allergic disease. It is true that these hormones have been found helpful in allergic conditions, particularly in the severe status asthmatic and in acute, severe allergic states of limited duration. Generally speaking, these results are temporary. Since the expense, hazards, and other inconveniences of continuous treatment with these drugs are well known, it is obvious that their usefulness must be limited. It is folly to use them in place of simpler symptomatic remedies, and it is shortsighted to substitute such treatment for more basic and more lasting allergy management.

11. *The Newer Ideas and Newer Therapies Are the Best.*—This fallacy not only misleads the public but fools the physician as well. Press writers seeking for sensational items, manufacturers desiring to publicize their product, and the medical investigator who does not mind having his experiences announced prematurely or in distorted fashion combine to promote a product which catches public and professional fancy. It may take several years for the medical profession to finally evaluate it, and by that time much damage, active and passive, may have ensued. The attitudes toward antihistamine, corticotrophin, and cortisone therapy constitute examples of the belief that "the newest is the best." There are and were in the past such attitudes toward many other therapies and concepts. I will mention only three or four of them. Years ago such therapies as calcium administration, use of potassium chloride, and zinc ionization of the nasal mucosa had their vogue for a time, only because they were new and the new appeals to many. A couple of fads of recent vintage are worth mentioning at this point. Extreme faddism in food allergy emanating from some quarters has led many physicians and lay people to believe that certain foods are not only the commonest causes of allergic diseases but that refined food products —such as pure corn dextrose, cane sugar, beet sugar, corn syrup, lactose, corn oil, and traces of starch, such as found in pills—are responsible for untold instances of allergy. The victims of these fads undergo prolonged periods of semistarvation and become obsessed with fears and complexes which are more difficult to eradicate than the allergy. The same school teaches that syndromes —such as chronic fatigue, muscle pains, mental depression, diminished powers of mental concentration, depression, manic depressive states, and many other conditions of multiple or undetermined origin—are due to food allergy. It is almost unnecessary to state that the methods by which such deductions are made are inadequate. It is a mistake to assume that just because the nature of a disease is not explained in any other way that allergy is the cause. The experience of the majority of well-trained allergists and immunologists indicates that such refined substances do not cause allergic symptoms [12] and that the syndromes mentioned cannot be proven to be allergic.

9. Hoagland, R. J.; Dietz, E. N.; Myers, P. W., and Cosand, H. C.: Antihistaminic Drugs for Colds: Evaluation Based on a Controlled Study, J. A. M. A. **142**: 157 (May 13) 1950. Feller, A. E.; Badger, G. F.; Hodges, R. G.; Jordan, W. S.; Rammelkamp, C. H., and Dingle, J. H.: The Failure of Antihistaminic Drugs to Prevent or Cure the Common Cold and Undifferentiated Respiratory Diseases, New England J. Med. **242**: 737, 1950.

10. Feinberg, S. M., and others: The Antihistamines, Chicago, The Year Book Publishers, Inc., 1950.

11. Rose, B.; Pare, J. A. P.; Pump, K. K., and Stanford, R. L.: Preliminary Report on Adrenocorticotrophic Hormone (ACTH) in Asthma, Canad. M. A. J. **62**: 6, 1950. Bordley, J. E.; Carey, R. A.; Harvey, A. M.; Howard, J. E.; Kattus, A. A.; Newman, E. V., and Winkenwerder, W. L.: Preliminary Observations on the Effect of Adrenocorticotropic Hormone (ACTH) in Allergic Diseases, Bull. Johns Hopkins Hosp. **85**: 396, 1949. Randolph, T. G., and Rollins, J. P.: Relief of Allergic Diseases by ACTH Therapy, Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, p. 479. Feinberg, S. M.; Dannenberg, T. B., and Malkiel, S.: ACTH and Cortisone in Allergic Manifestations: Therapeutic Results and Studies on Immunological and Tissue Reactivity, J. Allergy **221**: 195, 1951.

12. Loveless, M. H.: Symposium on Food Allergy: Milk Allergy: A Survey of its Incidence; Experiments with a Masked Ingestion Test, J. Allergy **21**: 489, 1950; Symposium on Food Allergy: Allergy for Corn and its Derivatives: Experiments with a Masked Ingestion Test for its Diagnosis, ibid. **21**: 500, 1950. Figley, K. D., and Rawling, F. F. A.: Symposium on Food Allergy: Clinical Experience in Corn Sensitivity, ibid. **21**: 510, 1950. Cazort, A. G.: Clinical Experience with Objective Diagnostic Tests in Corn Sensitivity, ibid. **21**: 512, 1951. Feinberg, S. M.; Huber, H. L.; Black, J. H., and Figley, K. D.: Reactions to Dextrose, Correspondence, J. A. M. A. **145**: 666 (March 3) 1951.

SUMMARY

Although there is considerable room for advance in our knowledge of the management of allergic syndromes, much of the failure of results at the present time is due to the misapplication of known principles. Among the common misconceptions prevalent today are the following: (1) every positive skin test indicates clinical allergy or requires desensitization; (2) negative skin tests indicate an absence of allergy; (3) desensitizing treatment sets can be made up by the laboratory without knowledge of the clinical facts; (4) desensitization is a short term "cure"; (5) nonallergic factors can be ignored in allergic disease; (6) the newest therapy, such as antihistamine or corticotrophin (ACTH) therapy is always the best. These misconceptions and other inadequacies in the knowledge of facts about allergy can be corrected only by educational approaches. These should include basic instruction in allergy for medical students; provision for the acquisition of experience by interns and residents, particularly residents in medicine and pediatrics; refresher courses for nonspecialists; good informative articles in nonspecialized medical journals, and planned, authoritative instruction of the public.

185 N. Wabash Ave.

V 147
1951

The Patient's Viewpoint.—Medical trends may come and go, but the patient goes on forever. New drugs, diagnostic facilities, consultative services have improved medical practice immeasurably, but the patient and his viewpoint have remained essentially unaltered. Increased interest in things medical, which prompts him to read about the latest in medicine in lay journals, has only helped to confuse him. . . . Misuse of terms is, of course, common to all classes. One must not be misled by the height of the intellectual level of the complainant. His knowledge of anatomy and physiology may be as low as among the less educated.—H. J. Skully, M.D., Clinical and Laboratory Notes: The Patient's Viewpoint, *Canadian Medical Association Journal*, July, 1951.

YOUNG CANDIDATES FOR CORONARY HEART DISEASE

Menard M. Gertler, M.D., New York, Stanley M. Garn, Ph.D.
and
Paul D. White, M.D., Boston

A great deal has been achieved with modern diagnostic methods in the diagnosis of the acute or subacute phase of coronary heart disease which terminates in myocardial infarction. However, the increasing death toll from coronary heart disease suggests that still another form of approach to this problem be studied, namely, the prevention of coronary heart disease. It is obvious that before preventive measures are instituted recognition of the individual most prone to coronary heart disease will be necessary. Efforts should be made to determine which indivduals have the greatest tendencies to myocardial infarction. How can we recognize these putatively normal people in the entire population? To suggest a solution to this problem is the purpose of this presentation.

The ability to prevent disease is generally proportional to the knowledge of the etiological factors and pathogenesis of a disease. It is for these reasons that the problem of preselection of men prone to coronary heart disease from putatively normal males has been difficult in the past. However, in a recent study of persons who had experienced a myocardial infarction prior to the age of 40 yr., certain leads were uncovered which it is hoped will prove helpful in the recognition of those in whom myocardial infarction is most likely to occur.[1] In the study to which reference is made above, it was found that out of a total of 100 persons who had experienced a myocardial infarction prior to the age of 40, 97 were men and three were women. This predominance of males with myocardial infarction necessitates the limitation of this presentation to the selection of males. It should be mentioned at this juncture that of the patients studied not one had diabetes, only one female had xanthomatosis and only one male had hypertension. The patients studied were, in essence, examples of "pure" myocardial infarction in males without any pathological condition known to enhance the production of a myocardial infarction.

METHOD OF STUDY

A total of 100 persons (97 men and three women) who had had myocardial infarction prior to the age of 40 were studied in the following manner. They were admitted to the Massachusetts General Hospital for a period of not less than 24 hr. and, on occasions, for periods as long as three weeks. Complete sociological, medical, dietary and general histories were taken. Urine was collected to ascertain the value of 24-hr. sterone excretion. Basal metabolic rates were determined the morning following admission. In 21 instances urine was collected for radioactive iodine determination following the ingestion of a standard dose of I^{131}. Blood was drawn for determining the levels of serum cholesterol (esters and free), serum uric acid, and serum phospholipids. Fluoroscopic, roentgenographic, electrocardiographic and physicial examinations were completed. Finally, anthropometric examination and measurements were accomplished, as was the somatotype photograph. In addition to this group of 100 persons, 146 men were studied for comparison purposes. These men were of roughly similar physique, occupation and ethnic origin, when compared to the coronary disease group. Essentially, there were only two differences between the studies completed in this group: 1. This group was not hospitalized and hence hormonal studies were not done. 2. Roentgenographic and fluoroscopic examinations were not made.

Accordingly, it is evident that a multifocal study of coronary heart disease was made which encompassed morphological, biochemical, hormonal, hereditary, psychological and clinical factors. Only those details will be included to which reference is made in this presentation. Further details are now in press.[2]

RESULTS

Hereditary Aspects.—In clinical practice, coronary heart disease is not infrequently encountered in siblings. Such observations have led to the hypothesis that coronary heart disease "runs in families." This question was considered in this study. In Table 1, the incidence of coronary heart disease in the parents of the 100 patients with coronary heart disease and 146 control individuals is considered.

TABLE 1.—*Incidence of Coronary Heart Disease in the Parents of 100 Patients with Coronary Heart Disease and of 146 Control Individuals*

Parents Affected	No. of Patients with Parents Affected	No. of Control Individuals with Parents Affected
Fathers alone	23	16
Mothers alone	1	5
Both parents	3	0
	27	21
Percentage	27	14

Thus, it is evident that twice as many parents of the coronary heart disease group had coronary heart disease as compared to the parents of the control group. Another interesting finding in this aspect is that 8.6%

This study was supported by a grant from the Commonwealth Fund of New York City.

Formerly Fellow in Medicine, Harvard Medical School and Massachusetts General Hospital (Dr. Gertler).

Dr. Gertler is now connected with Columbia-Presbyterian Medical Center and Francis Delafield Hospital.

Instructor in Anthropology, Harvard University, and Research Fellow at Forsythe Dental Infirmary (Dr. Garn).

Executive Director, National Advisory Heart Council; Chief Consultant, National Heart Institute; Clinical Professor of Medicine, Harvard Medical School; Consultant, Massachusetts General Hospital (Dr. White).

From the Coronary Research Project, Cardiac Department, Massachusetts General Hospital, and the Department of Medicine, Harvard Medical School, Drs. E. F. Bland, J. Lerman, S. A. Levine, H. B. Sprague, and Paul D. White, Directors.

1. Gertler, M. M.; Garn, S. M.; Bland, E. F.; Lerman, J.; Levine, S. A.; Sprague, H. B., and White, P. D.: Coronary Heart Disease in Individuals Prior to the Age of 40, unpublished data.

2. Gertler, M. M.; Garn, S. M., and White, P. D.: Coronary Heart Disease, to be published.

of the siblings of patients with coronary heart disease had this disease, while only 1.0% of the siblings of the control group had it.

Athletic Aspects.—It has been suggested that athletics both favor and inhibit the occurrence of a myocardial infarction. No attempt was made to answer this question with any finality. Certain data were presented which suggest that athletic endeavor and myocardial infarction are associated, but there is absolutely no evidence from which one could infer a causal relationship. The pertinent data are summarized in Table 2.

TABLE 2.—*Comparison of the Number of Letter Men Among the 46 Coronary Heart Disease Patients Who Attended High School, with the Percentage of Such Athletes*

	Number of Letter Men	Percentage of Total
Coronary heart disease group	23	50
Four high schools	1,031	10.05 *

* There were 10,315 men, altogether, in the high school group. This represents the percentage affected.

Occupational Aspects.—It is noteworthy that 42 men in the coronary heart disease group held managerial positions; 11 were professional individuals; seven were semiprofessional individuals; four were skilled workers; 30 were semiskilled workers, and three were unskilled workers.

Relation of Physique to Coronary Heart Disease.—The coronary heart disease group was predominantly mesomorphic (muscular) and consisted of very few ectomorphic (linear) individuals. The results are summarized in Table 3. There is excellent evidence that men having a particular physique are vulnerable to coronary heart disease prior to the age of 40. However, it is important to note that not all men of this particular physique will experience coronary heart disease before the age of 40.

The difference in height and weight between the control group and the coronary heart disease group was not as striking as was expected. The average height of the coronary heart disease group was 2 in. (5.08 cm.) shorter than that of the control group, the respective averages being 67.4 in. (170.2 cm.) and 69.3 in. (175.3 cm.). The patients with coronary heart disease weighed 177 lb. (80.3 kg.) while the average weight for the control individuals was 171 lb. (77.6 kg.).[3]

Generally, it may be stated that the patients with coronary disease showed (*a*) decreased linear measurements; (*b*) increased transverse measurements, and (*c*) increased width (anteroposterior) measurements.

Biochemical Findings.—These studies have been published elsewhere,[4] and only a brief summary will be made here of (*a*) serum total cholesterol, (*b*) serum uric acid, (*c*) serum phospholipids, (*d*) total cholesterol/lipid phosphorus ratio and (*e*) CUP index (total cholesterol/lipid phosphorus × uric acid). It was shown that the level of serum total cholesterol was, on the average, higher among the patients with coronary heart disease than in the control group. It was calculated from the data that 8.2% of the control group exceeded the mean value of serum total cholesterol (286.3 mg. per 100 cc.) of the coronary group. No one in the control group possessed a serum total cholesterol level greater than 352.0 mg. per 100 cc. (which is the value of the mean plus one standard deviation of the coronary heart disease group). It is interesting to note that 24 members of the coronary heart disease group possessed a serum cholesterol level below the mean serum cholesterol level of the normal group. It is obvious from these data that there is no threshold level of serum total cholesterol for the production of coronary heart disease but a high serum total cholesterol over 309 mg. per 100 cc. was present in 42% of the coronary heart disease group and 6% of the control group.

Similarly, it has been shown that the serum lipid phosphorus value is statistically higher in the coronary heart disease group than in the control group. However, it was shown by partial correlations that serum lipid phosphorus showed a positive age correlation in the normal group but failed to show any significant age correlation in the coronary heart disease group. Furthermore, it was shown that the serum total cholesterol/serum lipid phosphorus ratio is increased in the presence of coronary heart disease and this ratio is more important in reflecting the tendency to coronary heart disease than is either of the components taken separately.

Aside from these lipid interrelationships, it was found that the level of the uric acid in the serum was increased in the coronary heart disease group in contrast to the control group.[4] It is of primary interest that 24% of the coronary heart disease group possessed levels of uric acid in the serum greater than 6.0 mg. per 100 cc., while only 6% of the control group possessed similar levels.

TABLE 3.—*Dominant Physical Groupings in the Control Series and the Coronary Heart Disease Patients*

	Control Group, %	Coronary Heart Disease Group, %
Endomorphy	29	26
Mesomorphy	19	42
Ectomorphy	22	7
Midrange	30	25

Reducing Intensity of Saliva in Men with Coronary Heart Disease and in Normal Persons.—It was observed [5] that when 1 cc. of freshly collected saliva (three hours after food, drink or smoking) was placed in a Beckman potentiometer, the rate of electron transfer occurred at a more rapid pace in the coronary heart disease group. These data are summarized in Table 5. It is obvious that the electromotive force values drop more rapidly in the coronary heart disease group. The differences between the means is significant at all times except at 15 sec. and 1 min.

Method of Preselection of Men Who are Prone to Coronary Heart Disease.—The *modus operandi* of preselecting those males who are particularly prone to

3. Garn, S. M.; Gertler, M. M.; Levine, S. A., and White, P. D.: Body Weight Versus Weight Standards in Coronary Artery Disease and a Healthy Group, Ann. Int. Med. **34**: 1416-1421, 1951.

4. Gertler, M. M.; Garn, S. M., and Lerman, J.: The Interrelationships of Serum Cholesterol, Cholesterol Esters and Phospholipids in Health and in Coronary Artery Disease, Circulation **2**: 205-214 (Aug.) 1950. Gertler, M. M., and Garn, S. M.: Lipid Interrelationship in Health and in Coronary Artery Disease, Science **112**: 14-16 (July 7) 1950. Gertler, M. M.; Garn, S. M., and Levine, S. A.: Serum Uric Acid in Relation to Age and Physique in Health and in Coronary Heart Disease, Ann. Int. Med. **34**: 1421-1431, 1951.

5. Turner, N. C.; Gertler, M. M., and Garn, S. M.: Reducing Intensity of Saliva in Health and in Coronary Heart Disease, unpublished data.

V 147
1951

coronary heart disease may be compared with the methods employed by wildcatters and oil firms in their continued quest for oil. Before such definitive instruments as the seismograph were available and before accurate analyses could be made of the material extruded from the drills, these individuals determined the presence of oil in an area by certain empirical signs. That is, these wildcatters recognized that the chances of finding oil were in proportion to the number of positive associated variables uncovered in the area. However, they well recognized that oil may be found where the positive associated variables were few and, conversely, that oil may not be found where the positive associated variables were many.

The crux of preselecting men who will be prone to coronary heart disease is the learning of methods or techniques which will isolate those men from a putatively normal population. It is known that the man who is an endomorphic mesomorph is the most prone to coronary heart disease prior to the age of 40. While the somatotype is essentially the descriptive assessment of human structural variations, such a classification could be greatly enhanced by describing those further phenotypic expressions which are assessable only by biochemical analysis.

TABLE 4.—*Mean Values of Serum Total Cholesterol, Serum Uric Acid, Total Cholesterol/Lipid Phosphorus Ratio and "CUP" Index in Patients with Coronary Heart Disease and in the Control Series*

	Coronary Heart Disease Patients			Control Series		
	No.	Range	Mean ± S.E.	No.	Range	Mean ± S.E.
Total cholesterol	97	167-490	286.5 ± 6.6	146	148-332	224.4 ± 3.5
Lipid phosphorus	61	7.8-16.6	12.7 ± 0.27	146	8.6-16.6	12.0 ± 0.13
Total cholesterol / Lipid phosphorus	69	14.5-33.0	22.2 ± 0.5	146	13.0-26.4	18.8 ± 0.2
Uric acid	92	3.0-7.8	5.1 ± 0.11	146	2.9-6.9	4.6 ± 0.06
"CUP" index	59	49-118	119 ± 4.0	146	54-151	87 ± 2.0

TABLE 5.—*Mean Values and Standard Errors of Salivary E. M. F. Potentials, Coronary Heart Disease Group and the Control Group*

	Coronary Heart Disease Group	Control Group	Difference
15 sec.	270.5 ± 5.9	280.0 ± 5.1	n.s.
1 min.	239.0 ± 8.2	253.0 ± 5.4	s.
2 min.	213.0 ± 9.7	243.0 ± 6.2	s.
3 min.	179.5 ± 12.4	202.0 ± 6.8	s.
4 min.	157.0 ± 13.9	195.0 ± 8.1	s.
5 min.	133.5 ± 16.7	171.5 ± 9.2	s.
10 min.	0.5 ± 28.8	93.5 ± 16.5	s.
15 min.	− 98.5 ± 33.8	23.5 ± 22.7	h.s.
20 min.	−156.5 ± 36.8	− 35.5 ± 28.1	s.

n.s. = not significant
s. = significant $p = > 0.05$.
h.s. = highly significant $p = < 0.01$.

This latter concept, which has been called "chemotype,"[5a] appears to be a further step in the definition of the "normal" physique and its implications in disease have been discussed.[3] By applying the principle of chemotype with somatotype and other variables such as hereditary factors and history, it may be possible to segregate the males most prone to coronary heart disease from those whose chances of having coronary heart disease are not as great or are unlikely. Accordingly, preselection will depend upon the recognition of those individuals who possess a combination of phenotypic expressions which under certain conditions are thought to be highly associated with the existence of either active or latent coronary heart disease.

The Coronary Heart Disease Profile Pattern.—On the basis of the study made by the Coronary Research Project, certain phenotypic expressions were selected which are thought to represent the coronary heart disease profile pattern. In addition, several variables chosen are not phenotypic expressions, as they are defined today, but include such variables as heredity, psychology and temperament. From these data the following was thought to constitute the best available coronary heart disease profile pattern.

CORONARY HEART DISEASE
PROFILE PATTERN

CHARACTERISTICS	OIL EXPLORATION	CORONARY HEART DISEASE
HISTORICAL	Oil fields in vicinity	Family history of cardiovascular disease; perhaps arthritis, gout, and diabetes.
	Many wells	Siblings + +
SURFACE APPEARANCE	FAVORABLE FOLDED STRUCTURES	SOMATOTYPE
	Anticlines, domes and buried coral reefs	Dominant mesomorphy Sec. dom. endomorphy
	PROBING THE DEPTHS	FURTHER EXAMINATION
	Seismic reflections Gravity measurements Magnetic measurements Electric logs-sensitivity Radioactive logs-sensitivity	Psychological analysis Social adjustment Psychological tests Anthropometric Redox pattern
FURTHER ANALYSIS	DEPTH ANALYSIS	CHEMICAL ANALYSIS
	Microfossils Shales Limestones Sandstones	Cholesterol + + Uric acid + + Cholesterol / lipid phosphorus + + Uric acid index + +

In this profile pattern of coronary heart disease, criteria for preselection of the coronary-prone are treated analogously to those used for discovering oil.

THE CORONARY PROFILE PATTERN

1. Hereditary History
   - (*a*) Presence of coronary heart disease in any sibling at an early age (under 40), or in either parent at an early age (under 45);
   - (*b*) History of metabolic diseases, such as diabetes and xanthomatosis, or degenerative diseases, such as gout and arthritis;
   - (*c*) History of heritary hyperuricemia and hypercholesterolemia.
2. Psychological History
   - (*a*) Strong goal-directed drives, usually with accomplishment;
   - (*b*) "Aggressive" pattern not an outstanding feature;
   - (*c*) High athletic rating in contact sports;
   - (*d*) "Less masculinity" in absolute values, as revealed by Terman-Miles test.[2]
3. Anthropometry and Somatotype
   - (*a*) Dominant mesomorphy; secondary dominance endomorphy;
   - (*b*) Dominant ectomorphs the least susceptible;
   - (*c*) Decreased linear measurements:
     - stature
     - total face length
     - hand length
     - sternum ensiform
     - span
   - (*d*) Increased horizontal measurements:
     - shoulder breadth
     - upper chest depth
     - bipupillary measurements
     - nose breadth
     - bigonial measurements
     - head breadth
     - hand breadth

5a. Gertler, M. M.: The Chemotype and the Somatotype, Am. A. Phys. Anthrop. Proc. 8: 261-262 (June) 1950.

(*e*) No evidence of abnormal weight-increase in patients with coronary heart disease.
(*f*) Tendency to lowering of ponderal index (height over the cube root of weight) in coronary heart disease group.

4. Biochemistry
   (*a*) Serum cholesterol level elevated;
   (*b*) Serum uric acid level elevated;
   (*c*) Serum lipid phosphorus value slightly elevated;
   (d) Serum cholesterol/serum lipid phosphorus ratio increased;
   (*e*) CUP index $\frac{\text{(cholesterol} \times \text{uric acid)}}{\text{lipid phosphorus}}$ increased;
   (*f*) Reducing intensity of saliva to low emf values;
   (*g*) Urinary 17-ketosteroid excretion, low normal;
   (*h*) Basal metabolism rate low normal.
5. Clinical History
   Usually no signs prior to the coronary episode.

From the aforementioned data, certain of the critical variables were selected.

TABLE 6.—*Summary of Several Critical Variables and Their Percentage Distributions in the Coronary Heart Disease Group and Control Group*

	Coronary Heart Disease Group, %	Control Group, %
Ponderal index below 12.38 (mean of control group)...	68	50
Total endomorphy and mesomorphy exceeding 8.0.....	76	51.3
Serum cholesterol value above 305 mg. per 100 cc..... 309 = mean (X) + 2 standard deviations (2 σ) of the control group = 224 + 2 (42.7)	42	6
Serum uric acid level above 5.4 mg. per 100 cc..... 5.4 = X + σ = 4.64 + 0.76	28	16
Serum total cholesterol/lipid phosphorus 22.5 = X + 1.5 standard deviations (1.5 σ) = 18.8 + 3.7.....	50	10
CUP index above 115..... 119 = X + 1.0 standard deviations (1.5 σ) = 87 + 28	53	5
Reducing intensities of saliva below X — 2 standard deviations (2 σ) ..... + 66 at 4 min. = 195 — 2(64.5) + 13.5 at 5 min. = 171.5 — 2(79) — 188.5 at 10 min. = 93.5 — 2(141) — 354.5 at 15 min. = 23.5 — 2(189)	16	2.27

When this method of selection is applied to an unknown group of individuals, a routine must be established to insure a complete, uniform examination of each case. The procedure that has been adopted is as follows:

A. Make a gross selection
   1. Compile hereditary history and give physical examination;
   2. Determine the somatotype and the significant anthropometric measurements of each individual;
   3. Single out a subgroup whose ponderal index is below 12.38 (comparable to the age group of 33) and whose combined mesomorphy and endomorphy are 8.0 or above;

B. Obtain a positive hereditary history for one or more of the following:
   (1) cardiovascular disease;
   (2) metabolic diseases, such as diabetes or xanthomatosis;
   (3) degenerative diseases, such as gout.

C. Definitive Analysis
   1. Make chemical determinations for serum cholesterol, cholesterol esters, uric acid and lipid phosphorus; determine the BMR.
   2. If possible, determine the reducing intensity of the saliva of each individual.

Consider as potential coronary disease patients the individuals from the selected group (Section A and Section B) who have three or more of the following characteristics: (*a*) serum cholesterol above 309 mg. per 100 cc.; (*b*) serum uric acid above 5.4 mg. per 100 cc.; (*c*) total cholesterol/lipid phosphorus ratio above 22.5; (*d*) CUP index above 115; (*e*) any three reducing intensity combinations below + 66 at 4 min., + 13.5 at 5 min., — 188.5 at 10 min., and —354.5 at 15 min.; (*f*) basal metabolism rate below — 15.

6. Sheldon, W. H.; Stevens, S. S., and Tucker, W. B.: The Varieties of Human Physique, New York, Harper and Bros., 1940.

COMMENT

This communication has presented a method for the preselection of males who are likely to be prone to myocardial infarction prior to the age of 40. The salient features of the coronary profile pattern were based on a three-year investigative program on coronary heart disease, which encompassed several facets of study concomitantly. In all, 97 men who had experienced myocardial infarction prior to the age of 40 were studied, and 146 healthy men were studied for purposes of comparison. It is of interest that of the 146 men studied, six were selected as possible candidates for myocardial infarction prior to the age of 40.

Preselection of coronary-prone individuals could be made statistically on any population below the age of 40 merely by selecting the men of that population, for it is known that the ratio of men to women with coronary disease at that age is 24 to one.[1] However, it is known that not all males will have coronary heart disease prior to the age of 40. Thus, by adding another variable, i. e., by selecting those men who are endomorphic mesomorphs (whose endomorphy and mesomorphy total 8.0 or over), 50% of the men (approximately 25% of the population) would be possible candidates for myocardial infarction.[6] Furthermore, since not all endomorphic mesomorphs are prone to coronary heart disease, but only those with a particular biochemical or covert phenotype, it is necessary to make a further selection of the endomorphic mesomorphs or persons whose combined endomorphy and mesomorphy are greater than 8.0. Accordingly, those mesomorphs who have a serum total cholesterol value over 309 mg. per 100 cc. would be selected. On the basis of this criterion 80% of the endomorphic mesomorphs would be eliminated, leaving only 10% of the original male population. By further separation those males who are endomorphic mesomorphs and whose serum total cholesterol level is over 309 mg. per 100 cc. into a group whose serum uric acid level is over 5.4 mg. per 100 cc. and whose CUP index is over 115, total cholesterol/lipid phosphorus ratio over 22.5, and whose reducing intensity of the saliva follows the pattern described, approximately 25% will be eliminated from the original group, leaving only 7 to 8% of men who are more prone to coronary heart disease prior to the age of 40.

One may ask what can be done once preselection of the coronary-prone man is made. Naturally, it would be desirable to institute some form of therapy to forestall the episode of coronary attack for as long a time as possible. At present there is to our knowledge no definite form of replacement or adjuvant therapy which has proved to be effective in this cause. This difficulty stems partially from the inadequate understanding of coronary heart disease and partially from lack of concerted effort in this aspect of preventive medicine. If one is to assume that coronary atherosclerosis is the product of (*a*) a blood factor and (*b*) an intrinsic or arterial factor, then

V 14
1951

preventive therapy should consist in reestablishing these two factors to normal physiological conditions. It has been demonstrated that the relationship of the total cholesterol/lipid phosphorus ratio may reflect the stability of the cholesterol in the serum.[7] Hence, it is reasonable to suggest that the reestablishment to normal values of the serum total cholesterol/serum lipid phosphorus ratio would probably benefit the blood factor in coronary atherosclerosis. Theoretically this could be achieved by (*a*) decreasing serum cholesterol, (*b*) raising serum phospholipids and (*c*) by both methods. For practical purposes, raising the serum phospholipids gives the most consistent results.[8] The intimal or local factors are equally as important as the blood factors. The degree of intimal permeability to cholesterol may be a very important factor, for one could theoretically conceive of a condition whereby the coronary intima is impermeable to cholesterol or its products. Therefore, even if the blood factors were highly unstable, cholesterol and its products could not enter the coronary intima. In view of these two possible factors, preventive therapy would consist in (*a*) reestablishing the total serum cholesterol/serum lipid phosphorus ratio and (b) decreasing the permeability of the intima in the coronary arteries. Both methods are being studied currently.

SUMMARY

A method of selecting from a putatively normal population men under the age of 40 who may be prone to myocardial infarction has been described and discussed. The criteria of selection are based upon the results obtained from a three-year study on coronary heart disease conducted on 97 men who had experienced a myocardial infarction prior to the age of 40 and on a healthy group of putatively similar age, body build, ethnic origin, and occupation. The theoretical possibility of preventive therapy to forestall the primary myocardial infarction is discussed briefly.

622 W. 168th St.

7. Gertler and Garn.[4] Ladd, A. T.; Kellner, A., and Correll, J. W.: Intravenous Detergents in Experimental Atherosclerosis, with Special Reference to the Possible Role of Phospholipids, Federation Proc. **8** (pt. 1): 360, 1949.

8. Gertler, M. M.: Unpublished data.

AMINOPHYLLINE AS SUPPLEMENT TO MERCURIAL DIURETICS IN INTRACTABLE CONGESTIVE HEART FAILURE

Alfred Vogl, M.D.
and
Paul Esserman, M.D., New York

Management of the persistently edematous patient in an advanced stage of congestive heart failure presents a serious problem frequently encountered in medical practice. Such a patient is commonly considered refractory to treatment when he no longer responds to the combined use of bed rest, low salt diet, adequate digitalization and repeated mercurial injections. In particular, the lack of an adequate response to mercurial diuretics is generally regarded as an ominous sign,[1] indicating that the terminal stage of heart failure has been reached. Since all other measures are generally regarded as auxiliary to digitalis therapy, the most rigid criteria of full digitalization must be fulfilled before a therapeutic regimen can be called a failure.

Whenever it can be established that inadequate digitalization is not at fault, different therapeutic approaches must be considered. There are on record cases in which serum sodium reached abnormally low levels as a result of repeated mercurial injections, and diuresis was restored only after the low serum-sodium level had been corrected by the administration of hypertonic sodium chloride solutions.[2] Serum sodium should therefore be determined in every apparently "mercurial-fast" patient and, if the level is found to be low, it should be restored to normal. However, the number of patients in whom correction of salt depletion is a decisive element in restoring diuresis is, in our experience, quite small.

Recent studies have demonstrated the occurrence of a predominant fall of the serum chloride in the course of treatment with organic mercurials, a fact which accounts for the cessation of their diuretic effect. This could be restored by the use of ammonium chloride infusions for the correction of the hypochloremic alkalosis.[3]

In an approach to the problem from a different angle, attempts have been made either to potentiate the waning effect of the mercurial diuretics or to bridge the customary intervals between mercurial injections with diuretics of various types.[4] Attempts to increase the effect of mercurial diuretics by raising the individual dose above 2 cc. are usually unsuccessful [5] and greatly increase the danger of mercurialism, which rises in inverse proportion to the diuretic effect, since a considerable amount of mercury is retained if diuresis is insufficient (less than 2,000 cc.).[6] The acidifying salts, potassium salts or xanthine deriva-

From the Third Medical (New York University) Division, Bellevue Hospital.

Assistant Professor of Clinical Medicine, New York University College of Medicine and Associate Visiting Physician, Bellevue Hospital (Dr. Vogl); Resident in Medicine, Bellevue Hospital (Dr. Esserman).

1. Goldring, W.: Edema in Congestive Heart Failure: Effectiveness of Diuretics as Guide to Prognosis, Arch. Int. Med. **44**: 465 (Oct. 29) 1929.

2. MacGuire, W. B., Jr.: Risk of Uremia Due to Sodium Depletion, J. A. M. A. **127**: 1377 (Aug. 14) 1948. Soloff, L. A., and Zatuchni, J.: Syndrome of Salt Depletion: Induced by a Regimen of Sodium Restriction and Sodium Diuresis, ibid. **129**: 1136 (April 23) 1949. Schroeder, W. A.: Renal Failure Associated with Low Extracellular Sodium Chloride: The Low Salt Syndrome, ibid. **141**: 117 (Sept. 10) 1949.

3. Schwartz, W. B.: Some Electrolyte Factors Influencing the Response to Mercurial Diuretics in Congestive Heart Failure, Bull. New England Med. Center **12**: 213, 1950. Stock, R. J.; Mudge, G. H., and Nurnberg, M. J.: Congestive Heart Failure: Variations in Electrolyte Metabolism with Salt Restriction and Mercurial Diuretics, Circulation **4**: 54, 1951.

4. Ruskin, A., and Herrmann, G. R.: Studies in Combined Diuretic Therapy, J. Lab. & Clin. Med. **29**: 486, 1944.

5. Modell, W.: Optimal Dose of Mercurial Diuretics, Ann. Int. Med. **20**: 265, 1944.

6. Keith, M. M., and Whelan, M.: Action of Ammonium Chloride and Organic Mercurial Compounds, J. Clin. Invest. **3**: 149, 1926.

tives given by mouth have their well-known limitations. Moreover, they are usually no longer effective in the "mercurial-fast" stage.

As far as we know, a state of complete lack of renal response to mercurial diuretics (true refractoriness) has never been demonstrated, even in severe congestive heart failure. An initial period of diuresis probably invariably follows the administration of a mercurial diuretic, but this may be short-lived in advanced failure and quickly obscured by a compensatory period of salt-and-water retention. This series of events will, of course, result in no clinical benefit to the patient and no over-all weight loss. For clinical purposes, therefore, the diuretic has been ineffective in such a case (apparent refractoriness).

In patients with such a condition there is an obvious need for using some method of continuing diuresis after the diuretic effect of the original mercurial injection is spent. Recognition of this need has led to the employment of mercurial injections at more frequent intervals,[7] even twice a day.[8] This, of course, increases the likelihood of mercurial poisoning and other undesirable side effects.[9] Another method of sustaining the diuresis initiated by a mercurial diuretic is to follow it with injections of aminophylline. If these are administered at short intervals and in amounts greater than generally given over a 24-hr. period, they can act as fairly potent diuretics and thus allow a safe spacing of the mercurial injections. Moreover, aminophylline, when used simultaneously with a mercurial diuretic, will potentiate the immediate effect of the latter.

Before the introduction of the more potent mercurial diuretics, aminophylline was the only injectable diuretic preparation[10] and was considered one of the most effective available. It is more than just another xanthine derivative since it is a solution of theophylline and ethylenediamine. The ethylenediamine, although employed merely as a solvent for the theophylline, is not inert and appears to be responsible for some of the pharmacodynamic effects of aminophylline.[11] Among the various actions of aminophylline that have more recently been demonstrated,[12] its diuretic effect appears to result largely from an inhibition of renal tubular reabsorption similar to that known to occur with the organic mercurial drugs. In important contradistinction, however, there is no demonstrable damage to the tubular epithelium even after continuous use of aminophylline.[13] In addition to this action, however, aminophylline possesses a property not shared by the mercurial diuretics: It increases the effective renal blood flow and glomerular filtration, initially and briefly, apparently owing to an elevation in cardiac output and, for a longer period, to renal arteriolar dilatation. The effect on the cardiac output is achieved through a direct cardiac stimulation accompanied by a lowering of the venous pressure. The possible role of a simultaneous stimulation action[14] on respiratory and vasomotor centers is difficult to evaluate.

Three-Day Schedule of Combined Mercurial and Aminophylline Therapy

1st day	Morning	Meralluride injection (mercuhydrin sodium) 2 cc. + aminophylline 0.5 gm./2 cc. intravenously
	Evening	Aminophylline 0.5 gm./2 cc. intravenously or intramuscularly
2d day 3d day	Twice a day	Aminophylline 0.5 gm./2 cc. intravenously or intramuscularly

It appears, in summary, that the diuretic effect of aminophylline is based upon a complex mechanism that is, in part, functionally identical with that of the mercurial diuretics but is based, in addition, upon physiological phenomena not occurring with mercurial diuretics. Its low toxicity is a noteworthy asset. For all these reasons aminophylline appears to fulfil the postulates for a drug suitable to sustain and augment mercurial diuresis.

If, in the presence of normal serum electrolytes, the necessity for a re-enforced diuretic regime becomes apparent, the schedule of injections we usually employ is as follows: on the morning of the first day 2 cc. of a mercurial diuretic plus 2 cc. of a 25% solution of aminophylline (0.5 gm.), mixed in one syringe, is given intravenously. About 12 hr. later the same amount of aminophylline is given intravenously or intramuscularly. On the second and on the third days, the aminophylline injections are continued at 12-hr. intervals, morning and night. This entire three-day cycle of one mercurial and six aminophylline injections is repeated in series until adequate diuresis and weight loss have occurred. Thereupon the injections of aminophylline may tentatively be replaced by suppositories (0.36 gm. three times a day).

This empirical schedule is, of course, widely adaptable to the individual needs of the patient. Its essential points are the simultaneous administration of a sufficiently large dose (0.5 gm.) of aminophylline with the mercurial diuretic, and the regular daily use of aminophylline on the days when no mercurial injection is given. The small-

7. Gold, H.: Pharmacologic Basis of Cardiac Therapy, J. A. M. A. **132**: 547 (Nov. 9) 1946.

8. Bruno, M. S.: Fatal Toxic Nephrosis Following Administration of Mercurial Diuretics, New England J. Med. **239**: 769, 1948.

9. (*a*) Deitrick, J. E.: Clinical Management of Heart Failure, read before the New York Heart Association, New York, Nov. 2, 1949. Unpublished data. (*b*) Jaffe, H. L.; Master, A. M., and Dorrance, W.: Salt Depletion Syndrome Following Mercurial Diuresis in Elderly Persons, Am. J. M. Sc. **220**: 60, 1950.

10. Dessauer, P.: Euphyllin, ein neues Diuretikum, Therap. Monatsschr. **22**: 401, 1908.

11. (*a*) Vogl, A.: Ueber den Mechanismus und di eBehandlung der zentralen Dyspnöe, Klin. Wchnschr. **9**: 783, 1930. (*b*) Marais, O. A. S., and McMichael, J.: Theophylline Ethylenediamine in Cheyne-Stokes Respiration, Lancet **2**: 437, 1937. (*c*) Howarth, S.; McMichael, J., and Sharpey-Schafer, E. P.: Circulatory Action of Theophylline Ethylene Diamine, Clin. Sc. **6**: 125, 1947.

12. (*a*) Howard, McMichael, and Sharpey-Shafer.[11c] (*b*) Starr, J.; Gamble, C. F.; Margolis, A.; Donal, J. S.; Joseph, N., and Eagle, E.: A Clinical Study on the Action of 10 Commonly Used Drugs on Cardiac Output, Work and Size, on Respiration, on Metabolic Rate and Electrocardiogram, J. Clin. Invest. **16**: 799, 1937. (*c*) Greene, J. A.; Paul, W. D., and Feller, A. E.: Action of Theophylline with Ethylenediamine, J. A. M. A. **109**: 1712, 1939. (*d*) Crutchfield, A. J., Jr., and Wood, J. E., Jr.: Urine Volume and Total Renal Sodium Excretion, Ann. Int. Med. **28**:1, 1948; (*e*) Urine Volume and Total Renal Sodium Excretion During Water Diuresis, Ann. Int. Med. **28**: 28, 1948. (*f*) Escher, D. J. W.; Weston, R. E.; Leiner, G.; Leiter, L., and Goldat, S.: Effect of Aminophylline on Cardiac Output and Renal Hemodynamics in Man, Federation Proc. **7**: 31, 1948. (*g*) James, D. F.; Turner, H., and Merrill, A. J.: Circulatory and Renal Effects of Aminophylline in Congestive Heart Failure, Am. J. Med. **5**: 619, 1948. (*h*) Fowell, D. M.; Winslow, J. A.; Sydenstricker, V. P., and Wheeler, N. C.: Circulatory and Diuretic Effects of Theophylline Isopropanolamine, Arch. Int. Med. **83**: 150 (Feb.) 1949. (*i*) Sinclair-Smith, B.; Kattus, A. A.; Genest, J., and Newman, E. V.: Renal Mechanism of Electrolyte Excretion and Metabolic Balances of Electrolytes and Nitrogen in Congestive Cardiac Failure: Effects of Exercise, Rest and Aminophylline, Bull. Johns Hopkins Hosp. **84**: 396, 1949. (*j*) Green, D. M.; Bridges, W. C.; Johnson, A. D.; Lehmann, J. H.; Gray, F., and Field, L.: (Xanthine Studies 2) Effects of Aminophylline, 1,3-Diethyl-8-Bromoxanthine and 1,3-Dimethyl-8-Chloroxanthine on Water and Sodium Excretion, Federation Proc. **8**: 296, 1949. (*k*) Davis, J. O., and Shock, N. W.: Effect of Theophylline Ethylene Diamine on Renal Function in Control Subjects and in Patients with Congestive Heart Failure, J. Clin. Invest. **28**: 1459, 1949. (*l*) Schroeder, H. A.: Studies on Congestive Circulatory Failure: IV. The Effect of Various Diuretics on the Excretion of Water and Electrolytes, Circulation **4**: 54, 1951.

V 14
1951

est dose of aminophylline required for a diuretic effect is 0.5 gm. a day by intravenous or intramuscular route. The optimal dose is probably between 1.0 and 1.5 gm. a day, given in two to three injections of 0.5 gm. each. If during the 48 hr. following the initial mercurial injection the urinary output has exceeded 2,000 cc. per day, the mercurial diuretic may be repeated on the third (instead of the fourth) day, whenever faster removal of edema fluid is indicated. This regimen is discontinued as soon as congestive failure can again be controlled by simpler measures, and it may be used again whenever these measures fail. Occasionally, a single three-day period of the combined mercurial-aminophylline regimen will suffice to initiate copious diuresis and permit returning to the previous routine. Conversely, several weeks of persistent treatment in full dosage may be necessary before an unusually large and obstinate accumulation of edema fluid is finally removed.

This regimen has been used with gratifying results for about 20 yr. by one of us (A. V.).[15] Recently, a number of controlled cases were selected for publication. The difficulty in obtaining an ideal pretreatment base line of observation can be readily recognized, since most of these patients were so seriously ill that intensive therapy could not reasonably be withheld when the lack of response to the customary regimen became apparent. The patients selected for this series had been in the wards for some time without any noticeable progress or had available records of previous medical treatment. A patient was regarded as "refractory" to mercurial diuretics according to the clinical criteria mentioned above. Six cases are described in illustration of the regimen used and the results obtained.

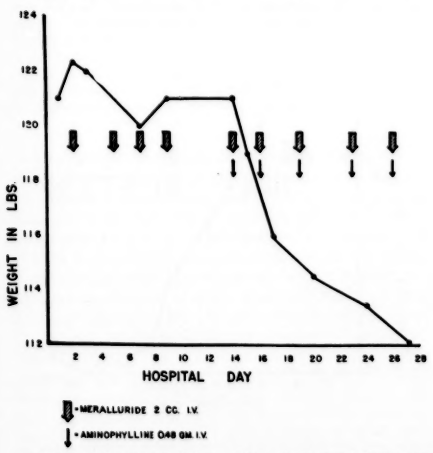


Fig. 1 (case 1).—Record of A. J., a 52-yr.-old Negress in severe congestive heart failure with syphilitic heart disease and aortic insufficiency. She was admitted because of her lack of response to digitalis and mercurials.

REPORT OF CASES

CASE 1.—A. J., a 52-yr.-old woman with severe congestive failure due to syphilitic heart disease, was admitted to the hospital because of progressive cardiac insufficiency in spite of digitalis medication and frequent mercurial injections. During a period of two weeks in the hospital (fig. 1) there was no symptomatic improvement or weight loss while the patient was fully digitalized, kept on bed rest, and a rice diet, and given four injections of meralluride (2 cc. twice a week). During a second two-week period she received another series of four intravenous meralluride injections at the same intervals. This time, however, 2 cc. of aminophylline (0.48 gm.) were added to each mercurial injection. Following these mixed injections there was a considerable diuretic response with a total weight loss of nine pounds (4.1 kg.), disappearance of edema and relief from dyspnea at the end of this two-week period. The patient was then discharged to the cardiac clinic and maintained, on limited activity, in satisfactory condition, receiving 0.1 gm. of digitalis leaf daily and one injection of meralluride and aminophylline intravenously every one to two weeks.

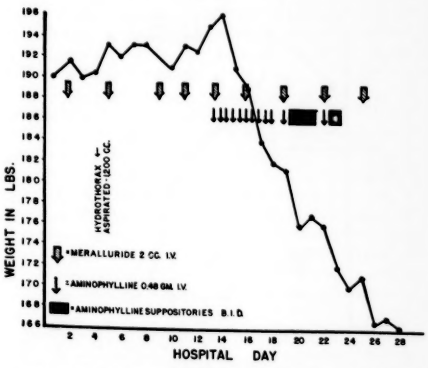


Fig. 2 (case 2).—Record of R. H., a 61-yr.-old man who had hypertensive and arteriosclerotic heart disease with auricular fibrillation and severe congestive heart failure with hydrothorax. There was no improvement for three months, despite full digitalization, ammonium chloride medication, and two mercurial injections a week.

CASE 2.—R. H., a 61-yr.-old man, had hypertensive and arteriosclerotic heart disease, auricular fibrillation and congestive failure that had become progressively worse for three months despite digitalization, ammonium chloride medication, and one to two mercurial injections a week. During a two-week period (fig. 2) while he received four intravenous injections of 2 cc. of mercurophylline injections (mercuzanthin®) each, the severe dyspnea, hydrothorax, hepatic enlargement and extensive anasarca did not subside, and his weight rose from 190 to 196 lb. (86.2 to 88.9 kg.). A thoracocentesis that removed 1,200 cc. of fluid did not result in any noticeable improvement. During the subsequent two-week period the patient received five intravenous meralluride injections (one every two to three days) and aminophylline injections (twice a day daily for six days). He responded immediately with considerable diuresis, lost 30 lb. (13.6 kg.) and most of his edema during this time and showed great symptomatic improvement. At this stage an injection of meralluride without aminophylline again produced a satisfactory diuretic response. After discharge home he was kept out of failure with 0.25 mg. of digoxin daily and infrequent intramuscular meralluride injections. He died of a cerebral vascular accident five months later.

13. Goodman, L., and Gilman, A.: Pharmacological Basis of Therapeutics: Textbook of Pharmacology, Toxicology and Therapeutics for Physicians and Medical Students, New York, The Macmillan Company, 1941, p. 639.

14. Dessauer.[16] Vogl.[16a] Vogl, A.: Erfahrungen über Euphyllin bei Cheyne-Stokes und anderen Formen zentraler Atemstörung, Mediz. Klinik **28**: 9, 1932.

15. Vogl, A.: Thirty Years of Mercurial Diuretics: Review of Their History and Present Status, Med. Rec. **163**: 189, 1950.

CASE 3.—F. P., a 75-yr.-old man with hypertensive and arteriosclerotic heart disease, in progressive congestive failure for six months, had been treated in the outpatient clinic for two months with digitalis and repeated injections of a mercurial diuretic. His failure continued, and he became more incapacitated. His weight varied between 142 and 148 lb. (64.4 and 67.1 kg.) on all his clinic visits, and his edema was recorded as 2+ to 4+. Finally, when 10 days of bed rest at home led to little improvement, he entered the hospital, weighing 136 lb. (61.7 kg.). Because there were symptoms suggestive of digitalis toxicity (anorexia, occasional ventricular premature contractions), digitalis was withheld and he received four injections of meralluride (one every other day) during the first week in the hospital (fig. 3). At the end of this week his weight was 133½ lb. (60.53 kg.), and there was very little subjective or objective change. During his second week he received one intravenous injection of 2 cc. of meralluride with 2 cc. of aminophylline, followed by further injections of aminophylline every 12 hr. for the next two days. In the course of this week he lost 10 lb. (4.5 kg.) in weight. He felt quite comfortable, was discharged to the clinic and started on digitalis again. During the subsequent six weeks he attended the clinic three times. He required no more mercurial injections, had minimal ankle edema and offered no complaints. He was again working as a clerk.

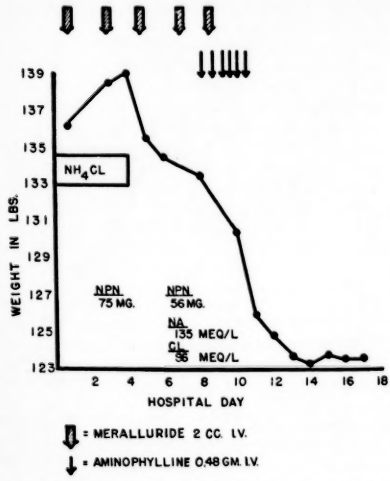


Fig. 3 (case 3).—Record of F. P., a 75-yr.-old white man in severe congestive heart failure with hypertensive and arteriosclerotic heart disease and auricular fibrillation. Signs and symptoms of heart failure were progressive for four months. There was mild digitalis toxicity on admission.

CASE 4.—B. E., a 62-yr.-old man with hypertensive and arteriosclerotic heart disease in long-standing intractable congestive failure, had been attending cardiac clinics for about five years, and one year before admission he had been receiving mercurial injections two to three times a week. The protracted suffering, the severe respiratory distress and the apparent futility of all therapeutic efforts made the patient so depressed that he had attempted suicide. He was admitted to the psychiatric ward in severe congestive failure; i. e., cyanotic, dyspneic, with distended neck veins, a diastolic gallop, a very large liver (edge 5 fingerbreadths below the costal margin) and 3+ leg edema. After he had had strict bed rest, a salt-poor diet, continued digitalis medication (0.1 gm. of digitalis leaf daily), and two mercurial injections during the first four days, his condition remained unchanged (fig. 4). After another three-day period during which he received 2 cc. of meralluride intramuscularly once a day and 2 cc. of aminophylline intramuscularly three times a day for three days, he developed a good diuresis, lost weight progressively and obtained relief from dyspnea. Weight loss continued during a subsequent three-day period without medication and another three-day period during which he was given one meralluride and three aminophylline injections on the first day, and three aminophylline suppositories daily on the following days. He became free of symptoms and signs of congestive failure on the 10th day of the combined treatment, a period during which he lost 17 lb. (7.7 kg.). His weight remained unchanged during the third week in the hospital, during which he received two to three aminophylline suppositories daily. He was so improved after 19 days in the hospital and so greatly encouraged by his progress that he was discharged from the psychiatric ward to home care.

CASE 5.—J. H., a 41-yr.-old man, had hypertensive and arteriosclerotic heart disease of long standing and obstinate heart failure. During his first two weeks in the hospital (fig. 5) there was no improvement in spite of digitalis medication, meralluride injections (twice a week), aminophylline suppositories (twice a day), bed rest and a salt-poor diet. As soon as aminophylline injections were added to the regimen (2 cc. once to twice a day, daily) he lost 8 lb. (3.6 kg.) in eight days but gained 7 lb. (3.2 kg.) in four days when he discontinued bed rest and returned to a normal ward diet. After bed rest and a salt-poor diet were reinstituted, he lost 15 lb. (6.8 kg.) in nine days, during which time he received meralluride injections every third day and aminophylline injections every day. At this stage he was edema-free and asymptomatic. He was maintained in this condition during the following six months by weekly mercurial injections under the care of the outpatient clinic. In this patient the sodium level was found normal during the first (mercurial-refractory) stage, and it remained normal when the patient's weight was at its minimum following 20 days of combined diuretic therapy.

CASE 6.—E. H., a 55-yr.-old woman, had pulmonary fibrosis, bronchiectasis, emphysema, cor pulmonale and very severe congestive failure with enormous anasarca, involving the lower and upper extremities, back and abdominal walls. She had been hospitalized in other hospitals six times during the previous two years with signs of progressive congestive failure. Full digitalization had never been possible because of the repeated appearance of multifocal, ventricular, premature contractions, which necessitated discontinuation of the drug. For four weeks she had been in another hospital (fig. 6), where she had lost 10 lb. (4.5 kg.) following a mercurial injection on admission, but then had had no significant change in weight (staying around 225 lb. [102

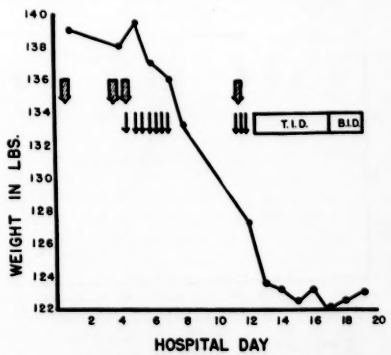


Fig. 4 (case 4).—Record of B. E., a 62-yr.-old white man with hypertensive and arteriosclerotic heart disease, in severe congestive failure for more than a year, his condition unrelieved by digitalis and three mercurial injections weekly. He was admitted after attempted suicide because of severe illness. The broad arrows = meralluride, 2 cc. i. v.; the slim arrows = aminophylline, 0.48 gm. i. v.; the rectangle = aminophylline suppositories.

V 14
1951

kg.]) despite six additional mercurial injections. She also had received digitoxin U. S. P. 0.1 mg. every other day regularly, two aminophylline suppositories daily for 12 days and 6 gm. of ammonium chloride daily for 10 days, without benefit. Sodium and chloride determinations had revealed normal values during this mercurial-refractory period. After 10 days at home during which digitoxin was continued, her weight had risen from 228 to 243 lb. (103.4 to 110.2 kg.). She was rehospitalized in extreme distress caused by severe dyspnea and massive generalized

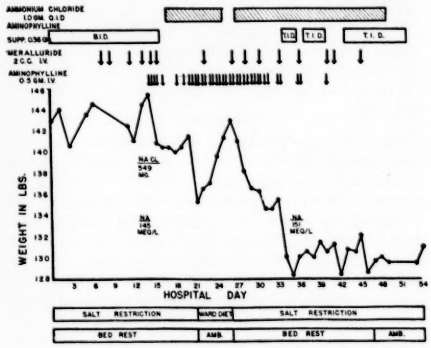


Fig. 5 (case 5).—Record of J. H., a 41-yr.-old man with hypertensive and arteriosclerotic heart disease and in persistent, moderately severe congestive failure, despite adequate digitalization. He had had three previous episodes of heart failure in the past year.

swelling. On this admission the combined therapy was started immediately with a mercurial injection every other day and two aminophylline injections daily. She lost weight rapidly and steadily, a total of 45 lb. (20.4 kg.) in two weeks; her edema decreased sizably. On her 12th day in the hospital, multifocal premature contractions and attacks of Adams-Stokes character with imperceptible pulse again developed. She died during one of these attacks. Autopsy was not performed.

COMMENT

The histories presented illustrate the results of the systematic use of aminophylline parenterally in patients who previously had been unresponsive to mercurial diuretics. They show that in an occasional patient (Case 3) a three-day course of the combined therapy initiated diuresis and restored cardiac compensation for an indefinite period; that in another only moderately edematous but particularly resistant patient (Case 5) a long course of aminophylline injections was necessary before the patient lost the symptoms of congestive failure; and that in two patients with unusually severe generalized anasarca (Cases 2 and 6), previously treated unsuccessfully, the combined therapy was able to initiate and maintain copious diuresis, which resulted in weight losses of 30 lb. (13.6 kg.) and 45 lb. (20.4 kg.) in two weeks, respectively. Occasionally, an adequate response to a mercurial diuretic was eventually regained by patients who had previously lost this response. This presumably occurred after more nearly normal circulatory conditions had been reestablished (Case 2).

No claims can be made regarding the prognosis of any case of congestive heart failure in which this form of therapy is used. Duration of improvement, likelihood of relapse, and life expectancy depend on the circumstances of the individual case. Since the method suggested is used chiefly in advanced or unusually obstinate cases of congestive heart failure, the compensation achieved may be of short duration in many instances. However, just as it is now established that many patients whose cardiac failure would have been regarded as intractable prior to the introduction of the mercurial diuretics have, with the aid of these drugs, been restored to a useful and comfortable life, we have found that a further smaller number of patients can be successfully controlled by means of the combined mercurial-aminophylline regimen after they no longer respond to the presen• customary methods.

Aminophylline is at present most popular as a bronchodilator. As a diuretic it is, to our knowledge, not widely used [12g] and, when it is, only as an occasional alternative for other diuretics and without arousing much confidence in the results. Recently there was a reinvestigation of the effects of its use in combination with a mercurial diuretic [16] when administered either before or after a mercurial injection. It was noted that diuresis was in most cases enhanced by this combination. However, in our observations, injection of the two drugs at the same time, mixed in one syringe, has also proved satisfactory.

We believe that the chief merit of the regimen outlined above is not the reenforcement of a mercurial diuretic by the concomitant injection of aminophylline, but rather the maintenance of continuous diuresis by the consistent employment of aminophylline as a potent and practically nontoxic diuretic agent during the intervals between the mercurial injections. It is conceivable that the sometimes surprisingly rapid reestablishment of cardiac compensation after a series of aminophylline injections is partly

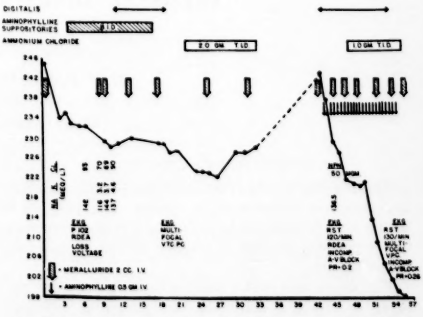


Fig. 6 (case 6).—Record of E. H., a 55-yr.-old woman who had extensive chronic pulmonary disease and cor pulmonale and was in advanced severe congestive failure of two years' duration, with enormous generalized edema. During the first 33 days charted, she was in another hospital; during the following nine days she was at home, and from the 43d day she was at Bellevue Hospital.

attributable to the demonstrated effects of the drug on cardiac output and venous filling pressure of the heart.

The reason aminophylline seems to have lost its popularity as a diuretic is probably not only because it is not

16. James, Turner and Merrill,[12g] Weston, R. E., and Escher, D. J.: Analysis of the Unresponsiveness to Mercurial Diuretics Observed in Certain Patients with Severe Chronic Congestive Failure, J. Clin. Invest. 27: 561, 1948.

so potent as the mercurial diuretics when used in the customary small dosage of 0.25 to 0.5 gm. a day, but perhaps also because of the local pain caused by intramuscular injection and especially because of the alleged serious reactions to intravenous injection. Symptoms ranging from dizziness, faintness, palpitation,[17] to syncope and sudden death have been reported. They apparently occur only if the drug is injected too fast and are probably due to the intense cerebral stimulation, affecting the cortical, respiratory and vasomotor centers. Immediate death was reported [18] in a few severely ill patients in shock due to acute myocardial infarction; in these patients a slight disturbance of the vasomotor balance or intense cardiac stimulation may have led to death. Intramuscular administration is usually not too painful if procaine is added. If the intravenous route is preferred some precautions are necessary: a period of five to six minutes should be allowed for the injection of 0.5 gm. of aminophylline; the patient must be in the recumbent position, his respiration should be watched, and any increase in depth and rate should be avoided. In the great majority of patients no respiratory changes will occur at the rate of injection mentioned above. With these precautions untoward effects are not to be expected and none has been personally observed in many hundreds of injections. If this technique is adhered to, there is no reason to dilute the 0.5 gm. of aminophylline in 20 cc. (or more) of water or dextrose. The dilution of 0.5 gm. in 2 cc. (on the market "for intramuscular use") will serve the purpose with less inconvenience. For the diuretic effect the route of administration seems to us to be of little consequence.

If success of the regimen is defined as an increase in diuresis and a corresponding loss of body weight in a fully digitalized patient in whom diuretic measures had been unsuccessful prior to the use of combined treatment, then the only failures we have encountered are in patients who died before the first three-day series of treatments was finished. Patients who survived this period showed an increased urinary output and some weight loss. This response was occasionally slight and therefore of little practical value; more often it was considerable and sufficient to initiate definite clinical improvement.

SUMMARY

There are reported observations on a regimen successfully used for patients with advanced congestive heart failure, who are apparently refractory to mercurial diuretics. The regimen consists of the intermittent use of mercurial injections concomitantly with multiple daily aminophylline injections in order to potentiate and maintain the diuresis initiated by the mercurial diuretic. The technique of this procedure is described, and the favorable results obtained are illustrated by six case reports.

1165 Park Avenue.

17. Barach, A. L.: Rectal Instillation of Aminophylline in Intractable Asthma, J. A. M. A. **128**: 589 (June 23) 1945. Luduena, F. P.: Bronchial Antispasmodic Actions of Theophylline Derivatives, Including Effects of Continued Administration, J. Pharmacol. & Exper. Therap. **75**: 316, 1942.

18. Merrill, G. A.: Aminophylline Deaths, J. A. M. A. **123**: 1115 (Dec. 25) 1943. Bresnick, E.; Woodard, W. K., and Sageman, C. B.: Fatal Reactions to Intravenous Administration of Aminophylline: Report of 3 Cases, J. A. M. A. **136**: 397 (Feb. 7) 1948.

V 14
1951

PERSONAL DIARY OF RADIATION DOSAGE

PLEA FOR A STANDARDIZED SYSTEM

M. H. Poppel, M.D., J. Sorrentino, M.D.
and
H. G. Jacobson, M.D., New York

I. PERSONAL RADIATION DIARIES

This is a plea for the adoption of a nationally standardized personal radiation-diary system. The purpose of such a system would be to reduce to a readied exactness the composite previous irradiation record of any individual patient.

We believe that such a diary is valuable for many reasons, the principal one being the cumulative biological effect of radiation. There is an ever-increasing use of radiation in its various forms by many types of specialists and practitioners, who may lack appreciation of the relative dangers of fluoroscopy in relation to film exposures, as exemplified in the table in Part II. The constant trend is to reduce the tolerance dose of x-rays, as witness the change in the past few years alone—from 0.2 to 0.1 r to 0.05 r per day, or 0.3 r per week. Furthermore, at present, there is lacking a readily available exact, uniform record of all previous radiation exposures for any individual patient. Moreover, because of the constant population shifts, both civilian and military, with the consequent dislocations and separations of records from patients, the possession of a diary would avoid delay and eliminate the necessity of correspondence for old records.

Each person would carry a permanent personal radiation diary, in which is recorded all previous exposures to radiation. This would include exposures to x-radiation—diagnostic (including dental), therapeutic, industrial, and occupation—radium; isotopes, and all other forms of radiation.

The record would consist of a series of entries of the areas exposed, milliamperage, kilovoltage, filtration, distance, dosage rate, and, most important, the total dose expressed in roentgens, or the equivalent. The various factors, including the r or equivalent value, would be obtained from certified radiologic physicists or from the application of the accompanying data in Part II in this paper. Each entry should be certified by a supervising

From the Radiological Service, Veterans Administration Hospital, Bronx N. Y.; Dr. Poppel, consultant; Dr. Sorrentino, associate radiologist, and Dr. Jacobson, chief of the service.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

qualified radiologist in a diary, to be jointly adopted by the national radiological organizations.

Many benefits would accrue from the use of such a diary. In it would be an immediate full record of all previous exposures, enabling exact appraisal. Nothing is more instructive to a radiologist who is about to utilize diagnostic or therapeutic radiation than to have before him a concise, exact, integrated record. It thus reduces all previous radiation factors to a common denominator, the r or its equivalent. It stimulates better planning and avoids overexposure for the current problem at hand.

The diary affords better evaluation of previous radiological effects, such as the relation of radiation to the genesis of leukemia, carcinoma, and sterility. It will result in better control and supervision of fluoroscopy, with consequent reduction of exposure and its hazards. This will be accomplished in part by eliminating overexposure by the unqualified and the unauthorized. As a prime example, the general practitioner will be put on notice as to the potential dangers to patients, himself, and his assistants. This will make him more radiation-conscious and will tend to increase the use of protective devices and timers. The hitherto careless recorder will be compelled to improve his methods. The system also has legal and insurance value, because it would help to distinguish between negligence and necessary heavy radiation.

II. DOSAGES IN RADIATION EXPOSURES

Handbook 41 of the National Bureau of Standards, 1949,[1] defines the permissible dosage rate as the maximum total dose to which any part of the body of a person shall be permitted to be exposed continuously or intermittently in a given time on the basis of 48 hours per week of uniform exposure. It shall be 0.30 r per week. This is the maximum recommended dose for practicing radiologists and x-ray technicians. In diagnostic radiographic and fluoroscopic examinations, a patient will generally be required to sustain a dose higher than 0.3 r in a given week, or 0.05 r in a given day. This is justified because of the necessity of arriving at an accurate diagnosis in order that proper treatment may be instituted.

Certain precautionary measures pertaining to fluoroscopy and radiography are fundamental. These are presented with special emphasis on permissible doses in terms of roentgens and optimum conditions for safe fluoroscopy

All radiographic and fluoroscopic tubes should have a minimum external filtration of 1 mm. Al.

While the minimum dark-adaptation time for fluoroscopy is 15 minutes, 20 to 30 minutes is recommended. The failure to observe this precaution will result in unsatisfactory fluoroscopic vision, which will tempt the radiologist to increase the milliamperage or kilovoltage and the fluoroscopic time.

Short intermittent fluoroscopic exposures should be used, rather than long continuous exposures. This practice allows the eyes to readapt during the dark intervals of fluoroscopy, thereby increasing the visibility of the image.

The smallest fluoroscopic field possible should be used to prevent needless exposure and to improve the sharpness of the fluoroscopic image. The minimum target-skin distance should be at least 15 in. (38 cm.), but preferably 18 in. (45.7 cm.).

For abdominal fluoroscopy the factors should not exceed 3 ma. and 70 kv. For chest fluoroscopy the factors should not exceed 3 ma., and 70 kv. For fluoroscopy of the extremities the factors should not exceed 3 ma. and 60 kv. The exposure factors used during a fluoroscopic examination should be recorded in a personal radiation diary, preferably by means of a rubber stamp with spaces provided for the necessary entries opposite the various factors. The same information is also stamped on the back of the patient's x-ray request form. These factors include the area exposed, total milliampere-seconds, kilovoltage, filtration, and target-skin distance. If calibration charts are available, the factors should be translated into

Doses Delivered to an Adult Patient

Fluoroscopy
(100 r in air delivered by)

Kv.	Ma.	Time (Min.) for 12 In. T. S. D.	Time (Min.) for 18 In. T. S. D.
60	3	13	23
65	3	11	20
70	3	9.5	17
75	3	8	15
80	3	7	13
85	3	6	11

Radiography * (Some Routine Studies)

Part	T.S.D., In.	Exposures	Total Ma.-Sec.	Total Dose, r in Air
Chest	72	1 AP 1 Lat	55	0.19
Chest	40	1 AP 1 Lat } Bucky	150	0.5
Skull	36	1 AP 1 Lat	200	2.3
Skull	36	3 AP 2 Lat	400	4.6
Esophagram	36	1 AP 1 Lat 2 Obl	400	7.8 r plus 2 min. fluoroscopy = 23 r
Gastrointestinal series	36	8 AP 6 Obl 1 Lat	1,275†	20.0 r plus 2 min. fluoroscopy = 35 r
Barium enema series	36	2 AP 4 Obl	600	11.8 r plus 2 min. fluoroscopy = 27 r
Intravenous pyelogram	36	4 AP	400	5.0
Abdomen	36	1 AP	100	1.25

* External filtration, 1 mm. Al.
† This includes polygraphic (multiple) exposures of the gastric antrum and the duodenum.

their value in roentgens and recorded. No patient should receive more than a total of 100 r in air for any one type of radiographic and/or fluoroscopic examination. This value is semiarbitrary and is based on (*a*) the threshold erythema dose for 80 kv. with 1 mm. Al (approximately 275 r in air); (*b*) the introduction of a 50% factor of safety to cover unpredictable variations in radiosensitivity of patients, variations in intrinsic filtrations of a tube, and variations in line voltages; (*c*) the known effect, i. e., blood changes, of 100 r given to large areas of the body, such as the abdomen and chest.

Any part of the body exposed to 100 r in air should not be reexposed for three weeks. Doses of between 60 and 100 r in air may be repeated after two weeks' rest,

1. Medical X-Ray Protection up to Two Million Volts, Handbook 41, United States Department of Commerce, National Bureau of Standards, 1949.

and doses of between 30 and 60 r in air may be repeated after one week's rest. Doses below 30 r in air may be repeated daily provided the total dose per week does not exceed 100 r in air. (This is based in part on Quimby's [2] work on recovery rates and our own experience and calculations.)

The dose administered to a patient during a fluoroscopic and/or radiographic examination may be estimated from the dosage tables and nomogram as published by Sorrentino and Yalow.[3]

The preceeding table gives the doses delivered by our equipment to an adult patient.

SUMMARY

A plea is entered for the adoption of a personal radiation-diary system.

The necessary precautions to be observed during fluoroscopy and radiography are presented.

A stamp method for recording fluoroscopic data is presented.

114 E. 54th St.

2. Quimby, E. H.; Taylor, L. S., and Weatherwax, J. L.: Physical Basis of Radiation, New York, Paul B. Hoeber, Inc., 1947.

3. Sorrentino, J., and Yalow, R.: A Nomogram for Dose Determination in Diagnostic Radiology, Radiology, to be published.

SPECIAL ARTICLE

RECOMMENDATIONS FOR HUMAN BLOOD PRESSURE DETERMINATIONS BY SPHYGMOMANOMETERS

A statement of the Committee of the American Heart Association to Revise Standardization of Blood Pressure Readings.

ORIENTATION

It should be clearly recognized that arterial pressures cannot be measured with precision by means of sphygmomanometers. Direct registration of pressures by calibrated intra-arterial manometers have shown (1) that even during quiet breathing and slight sinus arrhythmia, systolic and diastolic pressures vary from beat to beat by several mm. Hg, and that these differences are greatly intensified during states of arrhythmia and deep breathing; (2) that auscultatory systolic readings from the brachial artery average 3 or 4 mm. Hg too low and show average scatter of ±8 mm. Hg, and (3) that auscultatory diastolic pressures taken at the point of dulling of the sounds average about 8 mm. Hg too high. The errors of clinical measurement of blood pressure can be summarized by saying that in normal persons a mean error of ±8 mm. Hg may be expected in individual readings of systolic and diastolic pressures. Despite this, clinical blood pressure determinations have proved very serviceable for practicing physicians, clinicians, insurance carriers, and others concerned with physical examinations, diagnosis, prognosis, or therapy. It is important, however, that any basic deficiency of sphygmomanometry be not increased by additional errors due to apparatus or technique.

The following recommendations have been drawn up by your committee with the idea of aiding examiners to avoid pitfalls and, as far as possible, to establish greater reliability and uniformity in measuring systolic and diastolic pressures.

APPARATUS

A sphygmomanometer consists of (1) a compression bag surrounded by an unyielding cuff for application of an extra-arterial pressure; (2) a manometer by which the applied pressure is read; (3) an inflating bulb, pump, or other device by which pressure is created in the system, and (4) a variable, controllable exhaust by which the system can be deflated either gradually or rapidly.

In the selection and maintenance of an instrument attention must be given to accuracy of construction and performance.

1. Mercurial types of manometers should be provided with a device to prevent spilling of the mercury when not in use. The zero level of the mercury should be easy to check and the scale should accurately indicate differences between the levels of the mercury in the tube and the reservoir. Construction of the manometer should be such that the tubes and mercury can be cleaned without too much difficulty.

2. In the case of aneroid manometers, the readings on the dial at different pressures should check with those of a properly constructed and perfectly functioning mercury manometer. The fact, that the pointer indicates zero may be no guarantee of accuracy over the whole pressure range. When placed and held under pressure for some time the pointer should not shift or creep.

3. The inflatable armbag should, roughly speaking, be 20% wider than the diameter of the arm or thigh on which it is to be used. Armbags having the following widths are commercially available: for thighs of adults, 18 cm.; for arms of adults, 12 cm.; for children under 8 years, 8 or 9 cm.; under 4 years, 5 or 6 cm.; under one year, 2½ cm. or less. A length of armbag sufficient to half-encircle a limb is adequate, provided care is taken by the operator to place it on the side of the compressible artery. However, some authorities believe that any risk of misapplication should be obviated by use of an armbag that nearly or completely encircles a limb. (See Appendix VI.)

The armbag should be covered by a cuff of inextensible material of such a nature that an even pressure is exerted throughout the width of the cuff which lies over the artery. The cuff should have a convenient device for securely fastening after it has been evenly applied to a limb. The cuff and its locking mechanism should be so constructed that inflation of the armbag causes neither bulging nor displacement. There is no good evidence

This statement has been approved provisionally by the board of directors of the American Heart Association. Suggested changes or criticism may be forwarded to the chairman of the committee.

Prepared by James Bordley III, M.D., Charles A. R. Connor, M.D., William F. Hamilton, Ph.D., William J. Kerr, M.D., and Carl J. Wiggers, M.D., chairman.

V 14
1951

that any of several fastening devices featured by different manufacturers enhances the accuracy of pressure readings. Choice depends on personal ideas of convenience and manufacturers are to be commended on their improvement on the old fastening by a tapered cloth.

4. Instruments in use should be checked frequently as regards significant leaks in pressure tubing and the rubber bag, and competent, smooth functioning of the bulb exhaust and valves. Mercury manometers should be inspected often for loss of mercury, which leads to displacement of zero levels, and for dirty tubes and oxidation of mercury, which causes formation of a poor meniscus and clogging of air vents at the top of manometer tubes. Old leather filter discs should be replaced with ones of proper porosity as supplied by manufacturers.

TECHNIQUE

The Patient.—The patient may be either in a recumbent position or comfortably seated. The patient should be placed at ease and time should be allowed for recovery from any unusual recent exercise, meals, or apprehension. The arm should be bared, slightly flexed, abducted, and perfectly relaxed. In the sitting position the forearm should be supported at heart level on a smooth surface. The hand may be pronated or supinated later, depending on which position is found to yield the clearest sounds. The deflated armbag and cuff should be applied evenly and snugly around the arm with the lower edge about 1 inch above the antecubital space. If the veins of the forearm are prominently filled or there is evidence of congestion, the cuff should be applied while the arm is elevated in order to promote venous drainage.

General Precautions.—The mercury columns must be vertical. The meniscus should be read at a level with the observer's eye. It is not important to place the manometer at the heart level. The sounds heard on auscultation are not heart sounds; some misconception regarding this still exists.

Determination of Systolic Pressure by the Palpatory Method.—A comparison of systolic pressure by the palpatory and auscultatory method is always advisable except in infants in which the former method alone may be feasible. Since it is impossible for one individual to make simultaneous readings by the two methods unless a bracelet form of stethoscopic receiver is used, a preliminary determination of systolic pressure by the palpation method is advantageous. Such observations reassure the patient and offer the examiner a rough idea as to the maximum pressure to which the system needs to be elevated in subsequent determinations.

The patient's radial pulse should be palpated and its rate and regularity estimated and recorded. The pressure of the system should be raised to a level about 30 mm. Hg over the point at which the radial pulse disappears. Pressure should then be released slowly from the system at such a rate that pressure in the manometer falls about 2 to 3 mm. per heart beat (see Appendix I). The return of palpable beats at the normal rate of the heart should be noted as a preliminary estimate of systolic pressure. The cuff should be rapidly and completely deflated before further determinations are made. The whole procedure should be carried out as quickly as is consistent with accurate determinations.

Determination of Systolic Pressure by the Auscultatory Method.—A stethoscope receiver should be applied snugly over the artery in the antecubital space, free from contact with the cuff (see Appendix II). The pressure in the sphygmomanometer should then be raised rapidly and decreased slowly, as in the palpatory method, until a sound is heard with each heart beat. Note the reading as systolic pressure.

As a rule, systolic pressure determined by the auscultatory method is higher than that at which radial pulse beats are first palpable. In case the palpatory reading should be higher than the auscultatory, a number of maneuvers may be undertaken to improve conditions for hearing the sounds (see Appendix II). If, despite such efforts, the pressure read by palpation continues to be higher, it should be accepted as the reading for systolic pressure. This should be noted.

Determination of Diastolic Pressure by the Auscultatory Method.—With continued deflation of the system below systolic pressure at a rate of 2 to 3 mm. Hg per heart beat the sounds undergo changes in intensity and quality. As the cuff pressure approaches diastolic the sounds often become dull and muffled quite suddenly, and finally cease. It appears that the point of complete cessation is the best index of diastolic pressure (see Appendix III). Under hemodynamic conditions in which no cessation of sounds occurs, the point of muffling should be taken as diastolic pressure, if distinctly heard, and should be recorded as the point of muffled sounds. When no clear demarcation of the muffling is heard, diastolic pressure should be left indefinite and so indicated, e. g., 150/30.

The Operator.—A number of consecutive determinations of systolic and diastolic pressure should be made and, if they agree reasonably well, the average should be taken. Variations in auditory acuity are important. A physician aware of defective hearing should use an amplifying stethoscope. Auditory acuity is of importance in subtler ways. The first sounds that occur at systolic cuff pressures and the last ones to occur in determinations of diastolic pressure are exceedingly feeble and of short duration. Physicians improve their acuity by training, but personnel to whom blood pressure determinations are often relegated do not have equivalent auscultatory experience.

APPENDIX

I. The rate of pressure fall suggested is not only convenient in detecting the precise cuff pressures at which sound phenomena occur but, in the case of portable mercurial manometers commonly employed, it should not be faster. Many mercurial sphygmomanometers contain a porous covering over the manometer tube to prevent spilling of mercury when folded into a case. This reduces the rate of air flow through the porous covering which tends to develop a negative pressure above the mercury column and prevents equalization of pressure with the cuff when the mercury column drops too fast. On the other hand, too slow a release of pressure tends to cause intermittent trapping of blood between systolic and diastolic levels.

II. The following maneuvers are often helpful in improving the distinctness and quality of sounds:

(*a*) Slight variations in pressure and shifts in the position of the stethoscope receiver. Firm application of the receiver often facilitates recognition of the first sounds in determination of systolic pressure; but compression of the artery by a receiver must be avoided in determination of diastolic pressure. Occasionally better sounds are heard on the upper arm just above the antecubital space (owing to existence of aberrant arteries [?]).

(*b*) Avoidance of venous congestion in arm veins. Congestion stultifies the auscultatory criteria both by lowering the level at which sounds appear and by causing them to drop out when the cuff pressure is between systolic and diastolic (auscultatory gap). Clothing should be adjusted to avoid constriction and the cuff should not be inflated when the arm is pendant. If there is any sign of the auscultatory gap the observation should be repeated by filling the cuff when the arm is upraised.

III. The recommendations formulated in 1939 contained the suggestion that two values for diastolic pressure be recorded; for example, 140/80-70. It is the impression of the Committee that such a practice has not been followed very generally. It doubts, on the grounds of hemodynamics, the propriety of listing two figures as "diastolic pressure." The disappearance of auscultatory sounds as a criterion of diastolic pressure is urged on the following grounds:

1. The current practice of using the fourth point was based (*a*) on comparisons with oscillatory criteria, and (*b*) on hemodynamic data derived from studies of excised or isolated arteries undergoing direct compression or decompression. The former (*a*) is of dubious value since no general agreement has been reached regarding the oscillatory criteria of diastolic pressure. The latter (*b*) appears risky owing to the fact that unsolved physical factors may enter when pressure is transferred to arteries from a cuff of arbitrary size through the tissues of a limb.

2. While some difficulties still exist in making absolute comparisons between pressures determined by optical manometers and those revealed by auscultatory criteria, a limited number of such comparisons strongly suggests that, on the average, the cessation of sounds conforms rather better to the intra-arterial diastolic pressure and that dulling of sounds appears 5 to 10 mm. Hg above this level.

3. Accuracy, not applicability to every individual, should determine the choice of criteria. The fact that sounds may persist as cuff pressure is reduced to lower levels, or even to zero, in certain clinical states, such as aortic insufficiency, hyperthyroidism, anemia and in an occasional normal person, should not determine the selection of an equivalent criterion for diastolic pressure if it is not exact. The fact remains that cessation of sound does occur in a very large percentage of all individuals examined. It is therefore suggested that the less exact criterion of muffled sounds be used *only when necessary* and that such readings be recorded as the point of muffled sounds. If any significance is attached to the fact that sounds are heard below the fourth point, it should be recorded.

4. Tests of different examiners reveal that—probably owing to different degrees of auditory acuity—there is a greater uniformity in decisions as to when sounds cease than as to the point at which they begin to muffle. Hence greater uniformity in recording diastolic pressures and enhancement of their accuracy in any statistical study may be expected by using disappearance of sounds as a criterion. Furthermore, the distinctness or demarcation of the dulling phase varies in different subjects examined. Frankness must cause us to admit that all too frequently the reading of diastolic pressure by this criterion becomes merely a guess.

IV. *Arrhythmias and Dyspnea.*—The determination of blood pressure in arrhythmias and in pulsus alternans is unsatisfactory at best. An occasional premature contraction can be ignored. When continued irregularity occurs, as in auricular fibrillation or coupled beats, or in cases of pulsus alternans, the readings at which sounds appear and disappear in the stronger and weaker beats should be recorded. A similar procedure may be followed in patients with dyspnea.

V. *Basal Blood Pressures.*—When special studies of blood pressure are required, determinations should be made under basal conditions similar to those used in metabolic studies. A convenient way is to determine the patient's blood pressure before breakfast and before arising in the morning. Alternatively, it may be made in the office 10 to 12 hours after a meal and after the patient has reclined for at least 30 minutes in a comfortably warm room.

VI. *Blood Pressure in Thighs.*—Measuring the pressure in the thigh arteries poses difficulties that have not been solved. The exact cuff size for different sized thighs has never been worked out. In normal persons one guiding principle should be kept in mind, viz., systolic pressure in the thigh by intra-arterial measurement may be 10 to 40 mm. Hg higher than in the arm, but diastolic pressure is essentially the same. If one uses apparatus on a normal individual in which the thigh diastolic reading is higher than arm diastolic reading, the cuff width should not be trusted to give correct readings. In aortic coarctation, systolic pressure is very much lower and diastolic pressure a little lower in the thigh than in the arm. This cannot be truly recognized with a cuff that has not been tested carefully on a normal thigh of the same size as that of the patient.

VII. *Multiple Blood Pressure Determinations.*—When anomalies of the large arteries are suspected or an unexplained hypertension exists in a brachial artery, pressure readings should be made in the two arms and in one or both thighs. It is suggested that the blood pressure of a new patient be taken in both arms.

Documentation

Brief summaries of the pertinent literature since 1930 upon which the foregoing recommendations were based are appended. Although Bazett's studies pertained largely to oscillatory criteria his communications contain information of general applicability and are therefore included.

V 14
1951

H. C. Bazett and L. B. Laplace: Studies on Indirect Measurement of Blood Pressure; Sources of Error in Riva Rocci Method (*Am. J. Physiol.* **103:** 48, 1933).

A comparison of blood pressure measurements made simultaneously directly on the right femoral artery and indirectly by a modified Riva Rocci method on the left thigh in dogs is described. Both records were made optically. The indirect oscillatory method was demonstrated to be accurate for end systolic pressure whether a single or double bag system was employed, provided that a clear criterion was demonstrable, and that the bags were of proper size and properly applied. . . . A single bag or a double bag system should compress the thigh for a length of at least 12 cm. in dogs of 12 to 18 kgm. weight. In a double cuff system the upper bag must have a breadth of at least 5 cm. Cuffs of similar size are probably suitable for use on the human adult arm. . . . Changes in blood pressure are produced by inflation of a cuff, partly from mechanical obstruction of a large area, partly through reflex adjustments to this obstruction. These changes rarely exceed 5 to 10 mm. with occlusion of the thigh in the dog; in man with occlusion of one arm the effects are probably less than this. . . . During rapid deflation, profound local changes may occur in the pressures in the vessels previously compressed. Both lateral systolic and lateral diastolic pressures are reduced, probably as the result of absorption of pressure energy through the induction of a rapid velocity head into the empty vessels below the cuff. In consequence all measurements by indirect means of the lateral pressure levels are too low, unless the deflation is conducted slowly. Moderately slow deflation and consequent congestion does not introduce serious errors. Deflation at a rate of 2 or 3 mm. per second is recommended. . . . Some values for differences between end and lateral pressures in the femoral artery of dogs are given: . . . The systolic difference with a pulse pressure of 52 amounted to 18 mm. on the average; in the presence of aortic regurgitation with a pulse pressure of over 100 mm., to 20 to 40 mm. In diastole the end pressure might be 2 mm. below or 13 mm. above the lateral pressure; the mean value was 4 mm. above it.

H. C. Bazett, L. B. Laplace, and J. C. Scott: Pressure Changes Induced in Vascular System as Result of Compression of Limb, and Their Effect on Indirect Measurement of Lateral Pressures (*Am. J. Physiol.* **112:**182, 1935).

It has been shown in a schema, and also in dogs, that the process of compression of a segment of the vascular system by an air column alters the actual pressures within the system at compression pressures which exceed diastolic pressure. Diastolic pressure is raised particularly at pressures just above the diastolic level; systolic pressure is lowered at pressures below the systolic level, raised at pressures above it. At the true lateral systolic level these two effects more or less neutralize one another. The changes are shown to be modified by the volume of the compressed segment. The raising of diastolic pressure and lowering of systolic result from the decreased volume-elasticity coefficient created by the air column; the ultimate rise in systolic pressure depends on the stoppage of the flow and reflection of the primary wave; this second change is only brought gradually into action by an air compressing system, owing to the cushioning effect of the air column. . . . The effects of compression on diastolic pressure may be very unequal in the two separated parts of the main system. When separation is effected, the pressure changes proceed independently in the two sections according to their own volume elasticity coefficients and rates of outflow. The peripheral pulse pressure tends to be the greater owing to the lengthening of the diastolic period in this section, and the consequent fall of diastolic pressure to a lower level, but the whole picture may be altered by the direction in which the contents of the compressed segment are mainly discharged. In general this discharge is towards the side which has the slower rate of fall of pressure. . . . The flow of fluid along the angles of compressed arteries is denied; fluid transmitted at compression pressures, which exceed the lateral systolic pressure, does so in the form of a wave of "bolus" type.

Bertel von Bonsdorff: Zur Methodik der Blutdruckmessung (*Acta medica Scandinav.*, Supp. LI, 1932).

Review of work published in Helsingfors, e. g., v. Bonsdorff and C. Raiha (*Scandinav. Arch. Physiol.* **48:** 234, 1926); v. Bonsdorff and H. J. Wolf (*Ztschr. f. Exper. Med.* **79:** 569, 1931); Wolf and v. Bonsdorff (*Ztschr. f. Exper. Med.* **76:** 12, 43, 48, 1932-33).

They recorded cubital pressure with the Broemser glass plate optical manometer from one arm, together with respiration, and estimated systolic and diastolic pressures on opposite arms by appearance of sound (Phase I) and cessation of pure sound quality (Phase III). In 44 registrations of patients with various clinical disorders they found (p. 188) that systolic and diastolic pressure comparisons can correspond under some conditions. Very often, however, auscultatory readings are higher or lower than directly recorded pressures. The pulse pressure tends to be too low by the Korotkow method. Respiratory variations of several mm. Hg occur during natural respiration—these become greater, the deeper and slower that respiration becomes. . . . The following reasons are suggested for discrepancies:

Under otherwise similar conditions pulse waves of different forms are suppressed with variable facility. In determining diastolic pressure by auscultatory methods the results are apt to be affected by the ability of the vascular system to undergo vibrations. Other technical errors obviously enter.

W. F. Hamilton, R. A. Woodbury, and H. T. Harper: Physiologic Relations Between Intrathoracic, Intraspinal, and Arterial Pressures (*J.A.M.A.* **107:** 853 [Sept. 12] 1936).

Thirty comparisons between intra-arterial pressures and pressure readings by the cuff method indicate that the indirect method is 3-4 mm. too low in evaluating the brachial systolic pressure and 9 mm. Hg too high for diastolic pressure.

R. A. Woodbury, M. Robinow, and W. F. Hamilton: Blood Pressure Studies on Infants (*Am. J. Physiol.* **122:** 472, 1938).

The use of the pediatrician's cuff (4.5 cm. wide) gave palpatory readings 20-25 mm. Hg too low. (The auscultatory method cannot be used in infants.) Trying narrower cuffs the authors could get agreement with direct intra-arterial recordings of the umbilical systolic pressure only when the cuff was 2.5 cm. wide. Comparisons were made in 37 newborn babies. Recent authors (quoted) have given values, using wide cuffs that are lower (systolic) than mean pressures recorded by cannulating the umbilical artery.

M. Robinow, W. F. Hamilton, R. A. Woodbury, and P. P. Volpitto: Accuracy of Clinical Determinations of Blood Pressure in Children (*Am. J. Dis. Child.* **58:** 102 [July] 1939).

Since the cuff width is of importance in the reading of blood pressure in infants it was expected that cuffs as used in children might be either too wide or too narrow to give correct readings of systolic and diastolic pressure. The proper width of cuff increases with the circumference and with the length of the arm and probably decreases with its compressibility. All these factors vary in such a manner that the proper width of cuff increases with age. It is suggested that three cuffs be used for children. The average of 22 determinations in normal newborn babies was 1.3 mm. Hg lower than the average determination of umbilical systolic pressure. The average error of a single determination was 3.6 mm. Hg.

The 5 cm. cuff used in 12 children less than one year old gave average figures that differed 0.3 mm. Hg from the average brachial systolic pressure. For diastolic pressure the average reading was 11 mm. too high. The average error of a simple determination was ±6.5 systolic and ±11 mm. Hg diastolic.

The 9 cm. cuff gave in 34 children 1-13 years old a figure that was 2.1 (systolic) too low, and 4.6 mm. Hg (diastolic) too high. The average errors of a single determination were ±5.1 systolic and ±7.3 mm. Hg (diastolic).

Either systolic or diastolic readings could be made to agree with direct measurement by choosing a proper cuff width. The same cuff width would not do for both pressures. Three widths above were chosen to give a reasonably close figure for readings of both systolic and diastolic pressures.

M. R. Berry: The Mechanism and Prevention of Impairment of Auscultatory Sounds During Determination of Blood Pressure of Standing Patients (*Proc. Staff Meet., Mayo Clin.*, **15:** 699, 1940).

While he is determining blood pressures of standing patients by the usual auscultatory method, the physician frequently finds the auscultatory sounds to be very indistinct. Occasionally, sounds cannot be heard. Under these circumstances it will be difficult or even impossible to determine blood pressure. Such impairment of sounds seems to be referable to venous congestion distal to the cuff of the sphygmomanometer.

If the arm of a standing patient is raised above his head until the veins are relatively empty, if the cuff of the sphygmomanometer is then inflated so that a value exceeding that of the systolic blood pressure is obtained, and if the patient's arm is then lowered, impairment of auscultatory sounds will be prevented and determination of such a patient's blood pressure will be simplified.

Charles Ragan and James Bordley III: Measurements of Blood Pressure (*Johns Hopkins Hosp. Bull.* **69:** 526, 1941).

The commonly employed clinical method of measuring blood pressure should not be looked upon as a truly accurate procedure. In most adult subjects it provides reasonably reliable information, but in a significant number of cases the information may be quite misleading. Misinformation is particularly likely to be obtained in subjects with unusually large or unusually small arms: If the arm is small, the clinical estimate of the systolic pressure is likely to be too low; if the arm is large, the clinical estimate of both systolic and diastolic pressure is likely to be too high. The error in either direction may exceed 30 mm. Hg.

The foregoing observations must be borne in mind whenever it is necessary to come to a decision concerning the diagnostic or prognostic significance of minor depressions or elevations in the level of the blood pressure. Statistical studies of the relation between blood pressure and body weight should take into account the influence of the circumference of the arm upon the accuracy of the blood pressure measurements.

"ADDENDUM. *Note on the 'Auscultatory Gap.'* The phenomenon known as the "auscultatory gap" which is noted at certain times and in certain patients during the measurement of arterial pressure by the usual auscultatory method has been recognized by clinicians for many years. . . . When the cuffs encircling the two arms were inflated rapidly so as to avoid venous congestion distal to the cuffs, no auscultatory gap occurred as the cuffs were subsequently deflated. On the other hand, when inflation was carried out gradually a well-marked auscultatory gap was noted during deflation. A very striking difference may be noted between the intra-arterial pressure tracings in the two records. After rapid inflation of the cuffs the intra-arterial pressure fell some 45 mm. Hg below the diastolic pressure level in the unoccluded artery; as the cuffs were deflated, the intra-arterial pressure rose steadily but the diastolic pressure below the occluding cuff never rose appreciably above the diastolic level in the unoccluded artery. After the slow inflation of the cuffs the intra-arterial pressure did not fall so low, and as the cuffs were deflated the intra-arterial pressure rose rather rapidly and the diastolic pressure below the cuff reached a peak which was well above that of the diastolic pressure in the unoccluded artery.

"These observations are recorded here to note the fact that prolonged partial occlusion of the veins of the arm during the inflation of a blood pressure cuff affects the arterial as well as the venous pressure distal to the cuff. The effect upon the arterial pressure may be the determining factor in the production of the auscultatory gap."

J. Murray Steele: Measurements of Arterial Pressure in Man (*J. Mt. Sinai Hosp.*, **8:** 1049, 1941-42).

Concerning the comparison of simultaneous measurements of arterial pressure obtained by direct intra-arterial manometry and by indirect auscultatory technique in 39 individuals, it may be said that:

1. Systolic pressure was underestimated in indirect measurement by about 10 mm. Hg. In the present study, the indirect pressure in the brachial was compared with the direct pressure in the radial artery. This procedure may account for half of this difference.

2. In auscultatory technique the disappearance of sound proved to be a more accurate measure of diastolic pressure than the sudden muffling. The former over-estimated diastolic pressure by 8.8 mm. Hg, the latter by less than one.

3. The indirect auscultatory method of estimating arterial pressure is, considering its convenience and simplicity, an unusually accurate bedside method.

Robert W. Wilkins and Stanley E. Bradley: Changes in Arterial and Venous Blood Pressure and Flow Distal to a Cuff Inflated on the Human Arm (*Am. J. Physiol.* **147:** 260, 1946).

The effects of inflating a cuff upon arterial and venous pressures distally were studied by use of the Hamilton manometers. Of interest to our project was the observation that when cuffs were inflated to pressures between diastolic and systolic, and maintained at these pressures, the cuff isolated the distal tree intermittently and caused an elevation of diastolic pressure peripheral to the cuff. These observations would seem to stress the importance of not maintaining rising and falling cuff pressures in this zone for too long a period in routine determinations of blood pressure.

J. Harold Kotte, Arnold Iglauer, and Johnson McGuire: Measurement of Arterial Blood Pressure in Arm and Leg (*Am. Heart J.* **28:** 489, 1944).

1. The systolic blood pressure in the arm can be measured with reasonable accuracy in most subjects with normal pressure, hypertension, and aortic regurgitation by the ordinary arm cuff and auscultatory technique.

2. The brachial diastolic pressure, as measured by the ordinary cuff, is usually too high, especially in aortic regurgitation.

3. The femoral systolic blood pressure cannot be measured accurately with the ordinary 13 cm. cuff. A wider (15.5 cm.) cuff permits more accurate measurement of the femoral systolic pressure except in subjects with aortic regurgitation whose pressures cannot be measured accurately with either cuff.

4. Femoral diastolic pressures obtained with either cuff were grossly inaccurate in all subjects.

5. The difference between the blood pressure in the arm and leg in patients with aortic regurgitation is not so marked as is generally believed because the cuff, wide or narrow, does not allow true measurements of femoral pressure. Therefore, it is probable that no diagnostic value should be attributed to this sign.

Medical Education.—Let us warn against too rigid a conception of the organization of medical education. A completely coordinated, clearly defined and strictly circumscribed programme is easy to conceive and manage, and carries a wide appeal. But anything that is completely coordinated, clearly defined and strictly circumscribed is already dead. As Flexner points out, a living and growing subject inevitably has ragged edges, and as long as medicine has ragged edges and ill-defined border-lines there is hope that it is still a living and growing subject. Such irregularities, then, should not be considered as a source of annoyance; rather should they be viewed with pride, as evidence that medicine remains vigorously capable of advancement.—A. A. Abbie, The Academic Aspect of Medical Education, *The Medical Journal of Australia*, June 9, 1951.

V 14
1951

CLINICAL NOTES

ERYTHEMA MULTIFORME EXUDATIVUM (STEVENS-JOHNSON SYNDROME)

REPORT ON A PATIENT TREATED WITH PITUITARY ADRENOCORTICOTROPIC HORMONE

Virgene S. Wammock, M.D.
Colonel Albert A. Biederman
Medical Corps, United States Army
and
Major Robert S. Jordan
Medical Corps, United States Army, Camp Gordon, Ga.

The purpose of this presentation is to report a case of Stevens-Johnson syndrome (severe erythema multiforme), treated with pituitary adrenocorticotropic hormone, in which healing was rapidly effected and the symptomatic response to therapy was considered spectacular. The case conformed to the syndrome described by Stevens and Johnson [1a] and presented (1) generalized toxicity, (2) erythema multiformelike skin eruption, (3) purulent ophthalmia, (4) ulcerative stomatitis, and (5) an ulcerative lesion of the urethral meatus.

The cause of erythema multiforme exudativum has not been definitely established. Review of the literature [1] indicates that the disease may be infectious, although a common bacterial agent has not been found. Drug ingestion as a cause has been investigated, but most patients, including our own, do not give a history of drug ingestion. The possibility of a virus as the causative factor has also been investigated. Anderson, Bolin, Sutow, and Kitto [2] isolated cytoplasmic inclusion bodies from a rabbit cornea that had been scarified with material from skin vesicles of one of their patients. This procedure produced keratoconjunctivitis in the rabbit. Although a specific virus was not isolated, the investigators felt there was evidence to indicate that a virus was responsible for the disease in their patient.

The treatment of erythema multiforme exudativum has been largely nonspecific. Wentz and Seiple [1d] and Wright, Gold, and Jennings [3] reported a fair response to both sulfonamide drugs and penicillin. The average time necessary for cure appeared to be 21 or more days, with many patients exhibiting evidence of conjunctivitis for three months or more. In Jones, Talbot, and King's case the purulent ophthalmia did not respond to sulfonamide therapy.[4] Involvement of the eyes may be extensive and severe, and partial or total loss of vision often occurs.[5] Most authors have reported that the disease usually runs a protracted course and that recovery is rarely rapid.[6] Our patient's rapid response to treatment with pituitary adrenocorticotropic hormone, therefore, is unusual in erythema multiforme exudativum. For this reason we believe the details of this case may be of interest to others.

REPORT OF CASE

A 23-yr.-old white male soldier was admitted to Camp Gordon Station Hospital May 1, 1950, because of a severe conjunctivitis, multiple ulcers of the oral mucous membranes, a papular and vesicular eruption of the hands, arms, and feet, and an ulcer surrounding the urethral meatus.

The patient first noted a "fever blister" on the lower lip two weeks prior to admission. Within five to seven days his upper eyelids became swollen and red and he noted a purulent discharge from the eyes. One week before admission he began to develop erythematous vesicular lesions on the palms, wrists, ankles, and feet. Five days later his mouth became very sore, and on the day of admission he noted an ulcer surrounding the urethral meatus.

Physical Findings.—On admission the patient appeared acutely ill, his temperature was 100 F., pulse 106, and respirations 22. He presented multiple purplish-red macules and papules and vesicular lesions, with an erythematous halo on the forearms, palms, ankles, and feet. Several showed the typical iris configuration so often seen in erythema multiforme. The eyelids were edematous and red, the conjunctivas were markedly injected, and a purulent discharge was present. The lower lip was swollen and covered with crusted erosions, and there were multiple small aphthoid ulcers involving most of the oral mucous membrane. There was a foul, fetid odor to the breath. The urethral meatus was surrounded by an erythematous superficial ulcer 2 cm. in diameter. The physical examination was otherwise negative, except for the liver edge, which was palpable 1½ fingerbreadths below the right costal margin.

Laboratory Data on Admission.—The Kahn test was negative; hemoglobin 17 gm.; red blood cell count 5,450,000; white blood cell count 10,400, with neutrophils 65 (1 band form), lymphocytes 26, monocytes 5, and eosinophils 4. Results of urinalysis were negative. A culture and smear from the mouth revealed only nonhemolytic Staphylococcus albus; no pathologic fungi were found. An x-ray of the chest yielded normal findings.

Treatment and Course.—Treatment with pituitary adrenocorticotropic hormone was initiated on May 2, at which time the patient's temperature was 100.2 F. and the eosinophil count was 23 per 1,000 white cells. He was given 25 mg. of adrenocorticotropic hormone every eight hours for a total of six doses. Thereafter, he was given 25 mg. once daily for three more injections to a total of 225 mg. in a period of five days. Within 12 hours after adrenocorticotropic hormone therapy was begun the temperature dropped to 99 F., the eosinophil count to 8 per 1,000 white cells, and the patient felt much improved. Within 24 hours the mouth was no longer sore and the swelling of the

From the Medical Service, Station Hospital, Camp Gordon.

The pituitary adrenocorticotropic hormone was obtained through the courtesy of Dr. Robert B. Greenblatt, professor of endocrinology, Medical College of Georgia, Augusta, and consultant to the Surgeon General, United States Army.

1. (*a*) Stevens, A. M., and Johnson, F. C.: A New Eruptive Fever associated with Stomatitis and Ophthalmia: Report of 2 Cases in Children, Am. J. Dis. Child. **24**: 526 (Dec.) 1922. (*b*) Robinson, H. M., and McCrumb, F. R.: Comparative Analysis of the Mucocutaneous Ocular Syndromes, Arch. Dermat. & Syph. **61**: 539 (April) 1950. (*c*) Lever, W. F.: Severe Erythema Multiforme, ibid. **49**: 47 (Jan.) 1944. (*d*) Wentz, H. S., and Seiple, H. H.: Stevens-Johnson Syndrome: A Variation of Erythema Multiforme Exudativum (Hebra); Reports of 2 Cases, Ann. Int. Med. **26**: 277, 1947. (*e*) Patz, A.: Ocular Involvement in Erythema Multiforme, Arch. Ophth. **43**: 244 (Feb.) 1950.

2. Anderson, J. A.; Bolin, V.; Sutow, W. W., and Kitto, W.: A Virus as the Possible Etiologic Agent of Erythema Multiforme & Exudativum, Bullous Type: Report of a Case, Arch. Dermat. & Syph. **59**: 251-262 (March) 1949.

3. Wright, D. O.; Gold, E. M., and Jennings, G.: Stevens-Johnson Syndrome: Report of 9 Patients Treated with Sulfonamide Drugs or Penicillin, Arch. Int. Med. **79**: 510 (May) 1947.

4. Jones, W. Y.; Talbot, F. F., and King, W. F.: Stevens-Johnson's Disease: A Case Report, Am. J. Ophth. **29**: 185, 1946.

5. (*a*) Rosenberg, L., and Rosenberg, J.: Erythema Exudativum Multiforme (Hebra) with Conjunctivitis and Stomatitis, Arch. Dermat. & Syph. **41**: 1066 (June) 1940. (*b*) Klauder, J. V.: Ectodermosis Erosiva Pluriorificialis, ibid. **30**: 1067 (Nov.) 1937. (*c*) Kove, S.: Stevens-Johnson Syndrome (Eruptive Fever with Stomatitis and Conjunctivitis), Am. J. M. Sc. **210**: 611, 1945. (*d*) Richards, J. M., and Romaine, H. H.: Keratoconjunctivitis Sicca, A Sequel to Purulent Erythema Exudativum Multiforme, Am. J. Ophth. **29**: 1121, 1946.

6. Robinson and McCrumb,[1b] Lever,[1c] Rosenberg and Rosenberg,[5a] Kove.[5c]

eyelids and lacrimation had diminished. In 48 hours the patient was completely asymptomatic; the temperature was normal, the discharge from the eyes had ceased, the edema of the lids had almost entirely disappeared, most of the ulcers of the oral mucous membranes had healed, the skin lesions were dried and fading, and the ulcer about the urethral meatus was 50% improved.

Fig. 1.—Photograph of patient taken on day adrenocorticotropic hormone therapy was instituted (May 2, 1950).

By May 6, when therapy was completed, all manifestations of the disease were gone except for the residuum of the skin lesions and healing ulcers of the lower lip and penis. On May 5 the eosinophil count (taken 21 hours after the patient's single daily dose of adrenocorticotropic hormone) was 22 per 1,000 white cells. However, by May 9 the white blood cell count totaled 8,150, neutrophils 61 (2 band forms), lymphocytes 31, and eosinophils only 1. The total white blood cell count varied only from 8,150 to 10,400 during the entire period of hospitalization. The patient was discharged May 10, 1950, feeling completely well and exhibiting only residual pigmentation of the healing skin lesions and slight crusting of the larger ulcer on the lower lip. He was followed in the outpatient clinic and when next seen on May 15 was completely well. A white blood cell count done that day was 10,700, with 72% neutrophils, 26 lymphocytes, and 2 eosinophils (or 17 per 1,000). He has now been observed for 10 additional weeks and remains well.

COMMENT

The patient had noted some mild symptoms for seven to nine days and had a herpetic lip lesion two weeks prior to admission; however, he did not become severely ill until the day before hospitalization, or two days before treatment with adrenocorticotropic hormone was started. We feel that the rapid improvement of the purulent conjunctivitis and ulcerative stomatitis and the spectacular symptomatic response in this case were unusual. In reports describing patients with this disease who were treated with sulfonamide drugs, penicillin, or both in combination, the response has been cited as slower, and many patients developed chronic conjunctivitis that persisted for several months.[7] The conjunctivitis in our case was purulent, well developed, and growing progressively severer up to the time treatment with adrenocorticotropic hormone was begun. Recent reports indicate a good response to this hormone in various inflammatory diseases of the eye.[8] The considerable incidence of serious eye complications in the Stevens-Johnson syndrome and the usual slow recovery from eye involvement in general, greatly influenced our decision to try adrenocorticotropic hormone on an experimental basis.

There is considerable variation in the severity and duration of all lesions in the reported cases of Stevens-Johnson syndrome, so that an evaluation of the response to any form of therapy cannot be made by observation of a single case. However, the apparent beneficial effect of adrenocorticotropic hormone on the objective lesions,

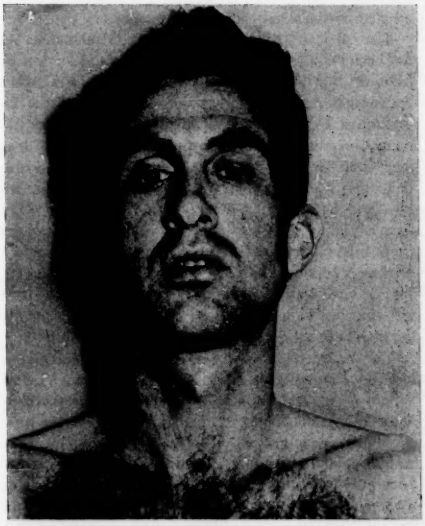


Fig. 2.—Photograph of same patient day after adrenocorticotropic hormone therapy was completed (May 7, 1950).

together with the undeniable and almost immediate symptomatic relief obtained in this case, would seem to justify further trial of this therapeutic agent. The comparative rarity of this disease makes it unlikely that a large series can be collected quickly in any single institution.

7. Wentz and Seiple.[1d] Wright, Gold and Jennings.[3] Murphy, R. C.: An Eruptive Fever Involving the Mouth and Eyes (Stevens-Johnson Disease), New England J. Med. **230**: 69, 1944.

8. (*a*) Gordon, D. M., and McLean, J. M.: Effect of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy in Ophthalmologic Conditions, J. A. M. A. **142**: 1271 (April 22) 1950. (*b*) Olson, J. A.; Steffensen, E. H.; Margulis, R. R.; Smith, R. W., and Whitney, E. L.: Effect of ACTH on Certain Inflammatory Disease of the Eye, J. A. M. A. **142**: 1276 (April 22) 1950.

V 14
1951

SUMMARY

Reference is made to previous publications describing the characteristics, methods of treatment, clinical course, and proposed causation of Stevens-Johnson syndrome.

A case is presented in which treatment with pituitary adrenocorticotropic hormone was given. Symptomatic response to this treatment was rapid and dramatic. Healing of the objective lesions appeared to be much rapider than would normally be expected.

A true evaluation of the effectiveness of pituitary adrenocorticotropic hormone in Stevens-Johnson syndrome must await its trial in a large number of cases.

TANTALUM MESH IN REPAIR OF CONGENITAL BONY DEFECTS OF SKULL AND SPINE

William Beecher Scoville, M.D.
and
Robert L. McLaurin, M.D., Hartford, Conn.

Tantalum mesh is proposed for the plastic repair of the congenital defects of encephalocele, meningocele, and spina bifida. It has been used successfully in abdominal hernias without adverse tissue reaction.[1] Stainless steel and silver wire mesh have both been proposed for the repair of post-traumatic cranial defects,[2] and Reeves [3] in his monograph on cranioplasty gives an excellent discussion of various metals used. No mention has yet been made of any metallic material for the repair of congenital defects.

Fig. 1 (case 1).—Roentgenogram of spine showing tantalum mesh inlay.

REPORT OF CASES

Case 1.—T. W., a 9-yr.-old girl, was first admitted to Hartford Hospital in February, 1941, at 2 weeks of age, with a large mid-dorsal meningocele; traditional repair using "fascial shutters" was performed. Postoperative Staphylococcus meningitis developed, but the infant recovered. Mild and progressive neurological sequelae over the ensuing nine years consisted of clubfoot and mild spastic incoordinated gait, with a positive Babinski sign. When she coughed there was visible bulging of the dural sac through a palpable fluctuant defect measuring about 6 cm. by 4 cm. Because of the evident risk of progressive herniation and adhesions of the cord, as well as pressure damage to it, a plastic repair was carried out in July, 1949, using two layers of tantalum mesh laid on the bias over the bony defect and stitched to the periosteum with fine stainless steel sutures (Fig. 1). The result was a firm covering without fluctuation. Unexpected improvement in gait and spasticity occurred, with a negative Babinski sign continuing to date, one year postoperatively.

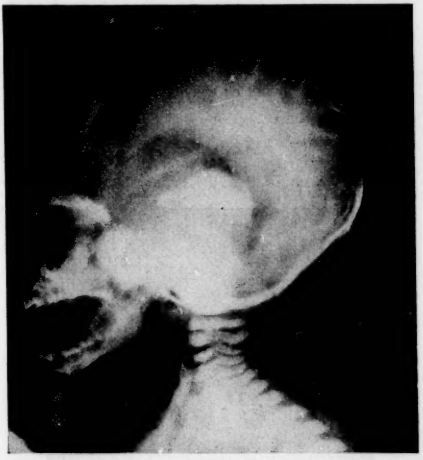


Fig. 2 (case 2).—Lateral roentgenogram showing large occipital encephalocele. Arrow indicates extension of fourth ventricle within proximal portion of the sac.

Case 2.—F. B., a 1-week-old girl, was admitted to Hartford Hospital in August, 1949, with a large occipital encephalocele, approximately two-thirds the size of the head, with accompanying severe hydrocephalus and funneling of the fourth ventricle into the encephalocele sac, as demonstrated by the ventriculogram (Fig. 2). The remaining greater part of the sac contained a loculated additional cyst filled with brownish-yellow, clear

From the Neurosurgical Department, Hartford Hospital.

1. Bates, J. I., and Reiners, C. R.: Repair of Cranial Defects with Zirconium: Experimental Study, J. Neurosurg. **5**: 340-348 (July) 1948. Jefferson, N. C., and Dailey, U. G.: Incisional Hernia Repaired with Tantalum Gauze: Preliminary Report, Am. J. Surg. **75**: 575-579 (April) 1948. Koontz, A. R.: Repair of Ventral Hernias with Tantalum Mesh: Preliminary Report, South. M. J. **41**: 214-217 (March) 1948. Koontz, A. R.: Preliminary Report on Use of Tantalum Mesh in Repair of Ventral Hernias, Ann. Surg. **127**: 1079-1095 (May) 1948. Koontz, A. R., and Kimberly, R. C.: Tissue Reactions to Tantalum Mesh and Wire, ibid. **131**: 666-686 (May) 1950. Throckmorton, T. D.: Tantalum Gauze in the Repair of Hernias Complicated by Tissue Deficiency: Preliminary Report, Surgery **23**: 32-46 (Jan.) 1948.

2. Boldrey, E. W.: Stainless Steel Wire-Mesh in the Repair of Small Cranial Defects, Ann. Surg. **121**: 821-825 (June) 1945. Lluesma-Uranga, E.: Las filigranas de hiio de plata en cranioplastia, Rev. cir. Barcelona **11**: 155-158 (Feb.) 1936.

3. Reeves, D. L.: Cranioplasty, Springfield, Ill., Charles C Thomas, Publisher, 1950.

fluid not communicating with the fourth ventricle. The case was considered hopeless for useful survival, but plastic removal of the entire cyst, with a shaving off of the protruding fourth ventricle and cerebellar extension, was carried out for cosmetic reasons. The bony defect measured 2 cm. by 2 cm. It was covered with two layers of tantalum mesh sutured flush to the periosteum and bone edges with fine stainless steel wire, resulting in a firm, nonfluctuant covering (Fig. 3). To our surprise, the hydrocephalus was promptly arrested for the ensuing month, with a temporary mild return for another month, followed by arrest continuing to date (one year postoperatively). The head now measures 50 cm. in circumference as compared with 30 cm. at birth.

COMMENT

Tantalum mesh has certain obvious advantages over other plastic material and methods in repair of congenital bony defects. It is easily trimmed, fitted, and fastened. When inserted on the bias, it stretches with growth. It is nonreactive. It provides a firm, smooth covering that in both cases reported resulted in more neurological benefit than had been anticipated. It may well be that progression of hydrocephalus or neurological defects or both, so frequently occurring after repair of these congenital lesions, is augmented by partial herniation and adhesions of the spinal fluid pathways and nerve tissue through an incompletely closed defect.

Fig. 3 (case 2).—Postoperative view of repair of encephalocele bony defect with tantalum mesh. Arrows show faintly visible mesh.

SUMMARY

Tantalum mesh is proposed as a means of plastic repair of encephaloceles, meningoceles, and spina bifida congenital defects.

85 Jefferson St.

SURGICAL TREATMENT OF STENOSIS DUE TO ESOPHAGITIS

FORMATION OF TEMPORARY EXTERNAL ESOPHAGEAL FISTULA OVER T-TUBE

Philip Thorek, M.D., Chicago

Esophagitis is a condition which occurs with relative frequency. Vinson and Butt,[1] Olsen,[2] and Allison [3] have attested to this fact in the recent literature. In 1935, Winkelstein [4] reported a group of cases which he described as peptic esophagitis.

The etiology of this condition is uncertain, but the most probable cause is the effect of gastric juice on the esophageal wall. Whether this gastric juice is a reflux into the esophagus from the stomach or whether it is produced in the esophagus itself by means of heterotopic gastric mucosa is open to discussion. Numerous theories and associated etiologic factors have been propounded.[5]

The symptoms of esophagitis are so commonplace that they are often overlooked. The frequent complaint of "heartburn" is described by the patient as a burning sensation in the epigastrium or lower sternal region. In severe cases, the patient may complain of pronounced substernal pain referable to the throat, the neck, and the arms. Moersch and Camp [6] are of the opinion that this type of pain is due to a diffuse esophageal spasm.

It no doubt is true that many cases of mild esophagitis will subside and leave no sequelae. However, should the condition progress and become chronic, cicatrization of the lower part of the esophagus occurs. Olsen and Harrington [7] believe that such cicatrization may lead to actual shortening of the esophagus. Hence the question arises whether or not hiatal hernia should be considered a consequence of rather than the cause of esophagitis.

It is also interesting to note how frequently these cases are associated with gastroduodenal ulcers. Van Aken [8] recently reported three cases of stenosis due to peptic esophagitis, all of which had had previous gastric resections for duodenal ulcers. He is of the opinion that the treatment of choice should be resection of the involved part of the esophagus.

Medical therapy should be attempted in cases of esophagitis prior to surgery. Such treatment includes the neutralization of gastric secretions, elevation of the patient's head, antispasmodics, and dietary regimes. If a cicatricial stricture occurs, dysphagia may be relieved by cautious dilatation, and should this fail, resection may be indicated.

From the Departments of Surgery, University of Illinois, Cook County Graduate School of Medicine, Cook County Hospital, American Hospital, and Alexian Brothers' Hospital.

1. Vinson, P. P., and Butt, H. R.: Esophagitis: Clinical Study, J. A. M. A. **106**: 994 (March 21) 1936.
2. Olsen, A. M.: Esophagitis, editorial, Surg., Gynec. & Obst. **86**: 372, 1948.
3. Allison, P. R.: Peptic Ulcer of the Esophagus, J. Thoracic Surg. **15**: 308, 1946.
4. Winkelstein, A.: Peptic Esophagitis: New Clinical Entity, J. A. M. A. **104**: 906 (March 16) 1935.
5. Butt, H. R., and Vinson, P. P.: Esophagitis: Anatomy and Physiology and Review of the Literature, Arch. Otolaryng. **23**: 391 (April) 1936.
6. Moersch, H. J., and Camp, J. D.: Diffuse Spasm of the Lower Part of the Esophagus, Ann. Otol., Rhin. & Laryng. **43**: 1165, 1934.
7. Olsen, A. M., and Harrington, S. W., cited by Olsen.[2]
8. Van Aken, H.: Stenosing Peptic Oesophagitis, Arch. chir. Neerland. **2**: 153, 1950.

V 14
1951

Wangensteen and Leven [9] reported six cases of esophagitis; they recommend subtotal gastrectomy as rational therapy for reduction of the secreting surface of the stomach.

In those cases in which the pathologic process has extended to such a point as to make resection impossible (chronic perforation with spillage, extensive fibrosis and edema), the only recourse might be the establishment of an external esophageal fistula over a T-tube. In a review of the literature, no report could be found in which a similar procedure was followed for stenosis due to esophagitis.

REPORT OF A CASE

J. M., a man, 51, entered the hospital with the complaint of dysphagia and loss of weight of eight months' duration. His past history revealed numerous episodes of gastric distress for 12 years. Six years prior to admission, he was operated on for a perforated peptic ulcer. With the exception of his having been a heavy drinker, his past history was otherwise noncontributory. Dysphagia began to develop six months prior to admission; this became progressively worse until he was able to swallow only small sips of water.

Physical examination revealed an emaciated man weighing 101 pounds (45.8 Kg.), who appeared ill but not in acute pain. The lower left chest was dull to percussion; diminished breath sounds were noted both anteriorly and posteriorly over the base of the left side of the chest. With the exception of an upper right rectus incision, the findings were essentially normal.

Roentgenograms revealed a pronounced filling defect involving the lower third of the esophagus with almost total obstruction. In the region of the lower left lobe of the lung, an opacity about the size of an orange was noted. Atelectasis could not be ruled out.

Esophagoscopy revealed an almost total obstruction of the esophageal lumen 42 cm. from the gingival border, which appeared edematous, red and bled easily. Biopsy of this section showed inflammatory tissue. After esophagoscopy the patient

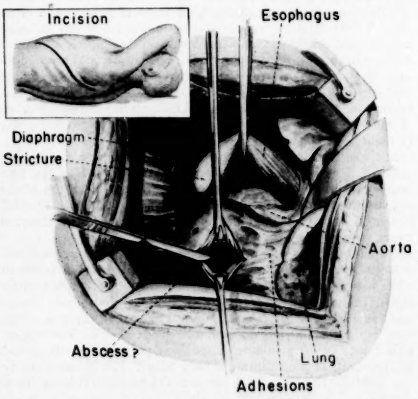


Fig. 1.—The insert shows the incision placed over the seventh rib, which was resected. The illustration reveals the relative size of the fluid-containing cavity, which was thought preoperatively to be an abscess. The involved segment of the esophagus is mobilized.

ran a febrile course, which was controlled within a week by conservative therapy. During exploratory thoracotomy 10 days later, an orange-sized mass in the left lower cavity was drained of turbid, flocculent, nonpurulent fluid (fig. 1). The resulting cavity was emptied and packed completely. The lower lobe of the lung was firmly adherent to the left hemidiaphragm; the lower third of the esophagus was exposed and found to be scarred, rigid, and inelastic. The esophagus was opened through a longitudinal incision in its involved portion so that a malignancy could be ruled out and the size of the esophageal lumen determined. This procedure revealed a scarred and inflamed muscular layer and an almost obliterated lumen. No definite ulcer could be identified, although it was thought that at one time a small slow perforation occurred in this segment, which

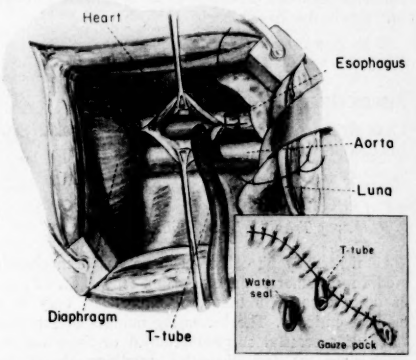


Fig. 2.—The involved portion of the esophagus has been incised longitudinally, and a T-tube placed within its lumen. The insert shows the postoperative drainage used in this case.

leaked peripherally between the diaphragm and the lung and accounted for the collection of turbid fluid found in the pleural cavity.

Resection was impossible because of the condition of the patient, contamination of the chest cavity, and the extreme amount of fibrosis and edema which involved the lower end of the esophagus. It was thought inadvisable to attempt to close the esophagus, since an esophageal leak seemed inevitable. The most probable diagnosis was a stenosis due to esophagitis with possible chronic perforation. A large semirigid T-tube was placed into the esophagus through the incision, and an external esophageal fistula was created (fig. 2). Although the T-tube was large, the dysphagia disappeared immediately on its placement in the esophagus. Bilateral vagotomy was performed, and the T-tube was sutured into place.

The patient was given fluids by mouth on the third postoperative day, and a roentgenogram on the ninth postoperative day showed barium passing into the stomach and out of the T-tube. The T-tube was permitted to remain in the esophagus for nine weeks, during which time the amount of swallowed food that appeared externally from the T-tube gradually diminished. After removal of the T-tube, the external opening closed within five days, and the fistulous tract began to narrow and disappear.

Within the first six months of this procedure, the patient has gained 22 pounds (10 Kg.), has a rather dilated esophageal lumen, no fistulous tract, and swallows solid food with ease. This patient is being cautiously observed roentgenologically and will probably require an occasional dilatation; however, at the time of this publication, this has not been necessary.

SUMMARY

A case of stenosis due to esophagitis is reported which resulted in almost complete obstruction of the lower end of the esophagus and was associated with encapsulated fluid in the lower left chest (probably due to esophageal spillage). Resection was considered impossible because of the patient's condition, the contaminated pleural

9. Wangensteen, O. H., and Leven, L. H.: Gastric Resection for Esophagitis and Stricture of Acid-Peptic Origin, Surg., Gynec. & Obst. 88: 560, 1949.

cavity, and the condition of the esophageal wall. A temporary external esophageal fistula over a T-tube was created. Bilateral vagotomy to diminish hypersecretion and hyperacidity was done. The patient's condition continues to improve; the fistula is closed, and the dysphagia has not recurred. In a review of the literature, no report could be found of a procedure of this type being followed for stenosis due to esophagitis.

25 E. Washington St.

PHEOCHROMOCYTOMA

CASE REPORT WITH DISCUSSION OF DIFFERENTIAL DIAGNOSIS AND SURGICAL TREATMENT

Henry C. Decker, M.D., Fletcher W. McDowell, M.D.
and
I. Ridgeway Trimble, M.D., Baltimore

Until recently pheochromocytoma has been considered a rare tumor of the chromaffin cells of the adrenal or other chromaffin tissue, of importance only as a medical curiosity. The increasing number of reported cases of successful surgical removal of these tumors emphasizes the fact that this condition should be considered in the differential diagnosis of diabetes, hyperthyroidism, and hypertension.[1] When these three diseases coexist, pheochromocytoma must be ruled out carefully. The fact that it is most often diagnosed at autopsy [2] indicates that more attention must be focused on this extremely interesting epinephrine-producing tumor.

Bartels and Cattell,[3] in their recent article, emphasize the need for specific tests to aid in this difficult diagnosis. Our case also indicates that reactions to the histamine and piperoxan (benzodioxane) tests are not always positive in the presence of this type of tumor. The dibenamine® (N, N-dibenzyl betachloroethylamine hydrochloride) test was by far the most useful single aid in the diagnosis. Two other reports [4] in the last two years give additional evidence of the need for specific tests. A method for the accurate determination of the amount of circulating epinephrine in the blood stream would make possible the ideal diagnostic test. Although the dibenamine® test looks promising now, the total experience with this test is so limited that we are unable to be sure how reliable it will prove in a large series of cases.

Smithwick [2] has given the following 12 symptoms, signs, and tests to be considered in the diagnosis of pheochromocytoma: (1) excessive sweating, (2) peripheral vasomotor phenomena, (3) fever, (4) normal cold pressor response, (5) fasting blood sugar of 120 mg. or more, (6) basal metabolic rate of + 20% or more, (7) postural tachycardia and postural hypotension, (8) glycosuria, (9) paroxysmal attacks of headache and hypertension, (10) diabetic glucose-tolerance test, (11) positive reaction to a histamine test, and (12) blocking-drug tests. We wish to emphasize our belief that the total clinical picture is more important than any one or two tests and that a patient must not be denied operation because a heretofore reliable test fails to bear out the clinical impression. It must be remembered that this condition is amenable to surgery, except in the case of a small number of malignant tumors, but that without surgical removal death will ensue.

REPORT OF A CASE

M. J. E., a 56-yr.-old white woman, entered the Hospital for the Women of Maryland on April 6, 1950. She complained of severe bitemporal headache of brief duration for the preceding three weeks. The family history was noncontributory. She has enjoyed very good general health. In 1908 a small goiter on the right side was removed, and in 1919 she had repair of a rectocele. Panhysterectomy, left salpingo-oophorocystectomy, and appendectomy were performed in 1932. In February, 1949, cholecystectomy and ventral herniorrhaphy were done at this hospital. The patient is married and has seven children.

Since her discharge in February, 1949, the patient has been in excellent health until three weeks prior to admission. At this time she first experienced an attack of headache, being awakened from a sound sleep in the middle of the night by it. The headache lasted only a few minutes, and she went back to sleep. She had no trouble until one week later when she began to complain of headache during the day, the headache usually lasting for one to five minutes, although one episode lasted for 30 min. The patient had a feeling of impending disaster a few minutes before the headache occurred. The pain began in the temporal regions and extended to the top of the head and was pulsating in character. It was excruciating. She did not complain of any abdominal or chest symptoms, and there was no tingling or numbness of the extremities, no goose pimples, no nausea, and no palpitation. She was seen during one attack by a physician who found that her systolic blood pressure was over 200 mm. of mercury. During the two weeks prior to admission the headaches increased in number and severity and occurred at any hour of the day or night.

She was seen in the Outpatient Department three days before admission, when her blood pressure was 130/80. Her past records were reviewed over a period of two years, and the blood pressure recordings were found to range from 105/80 to 130/80. Findings from review of the systems, other than as reported above were normal.

On physical examination in a resting state the patient was seen to be an anxious, well-developed, moderately overweight white woman in no acute distress. The skin was warm and slightly moist. The pupils were normal, and there were no visible abnormalities in the fundal vessels. There was a small thyroidectomy scar, but the gland felt normal. The heart rhythm was regular with a rate of 80 a minute. There was no evidence of cardiac enlargement, and no murmurs were heard. The blood pressure was 130/82. The rest of the physical examination findings were normal.

During the attacks while in the hospital the patient became slightly pale, although her normal skin color was sallow; the skin was moist. She sat up in bed holding her temples in her hands. There was an expression of great anxiety, and she cried aloud about the horrible beating pain in her head. The blood pressure reached a maximum of 235/140, but neither the cardiac nor the respiratory rate was affected greatly. After the climax she lay back exhausted in her bed. The entire episode usually lasted about 10 min. At the end of this time the pressure was normal. The blood pressure was taken four times a day routinely and ranged from 110/60 to 230/100. At times the pressure

From the Hospital for the Women of Maryland.
Dr. Evan Calkins and Dr. John Eager Howard assisted in the medical management of the case here reported.

1. Goldner, M. G.: Pheochromocytoma with Diabetes: Case Report and Discussion, J. Clin. Endocrinol. **7**: 716-723 (Oct.) 1947.

2. Smithwick, R. H.; Greer, W. E. R.; Robertson, C. W., and Wilkins, B. W.: Pheochromocytoma: A Discussion of Symptoms, Signs and Procedures of Diagnostic Value, New England J. Med. **242**: 252-257 (Feb. 16) 1950.

3. Bartels, E. C., and Cattell, R. B.: Pheochromocytoma: Its Diagnosis and Treatment, Ann. Surg. **131**: 903-916 (June) 1950.

4. (*a*) Spear, H. C., and Griswold, D.: The Use of Dibenamine in Pheochromocytoma: Report of Case, New England J. Med. **239**: 736-739 (Nov. 11) 1948. (*b*) Spühler, O.; Walther, H., and Brunner, W.: Zur Diagnose, Klinik und operativen Therapie des Phäochromocytoms: Histamintest und Dibenamin, Schweiz. med. Wchnschr. **79**: 357-361 (April 23) 1949.

V 14
1951

would be found elevated without symptoms. During the three weeks preceding the operation the patient had a spiking, low-grade fever; the oral temperature ranged from 98 to 100 F.

Laboratory Data.—Reaction to the serologic test for syphilis was negative, and the blood morphology was normal. The urine contained no sugar, but on one occasion a trace of albumin was found; the sediment was normal. The nonprotein nitrogen was 24.5 mg. per 100 ml. The fasting blood sugar was 120 mg. per 100 ml. This test was repeated a week later, when it was found to be 133 mg. per 100 ml. The basal metabolic rates on two tests were found to be +14% and +17%. An electrocardiogram showed no abnormalities, and x-ray examination of the chest showed normal condition. An intravenous pyelogram failed to show the left kidney and ureter. The right kidney and urinary tract looked normal. A left retrograde pyelogram disclosed an infantile kidney on the left side. No mass could be demonstrated above the kidney. The left kidney was nonfunctioning as tested by the phthalein-excretion test, but the right kidney showed good function, with 40% excretion of the dye. Although the left kidney showed no phthalein excretion, a little urine was obtained when the left ureter was catheterized.

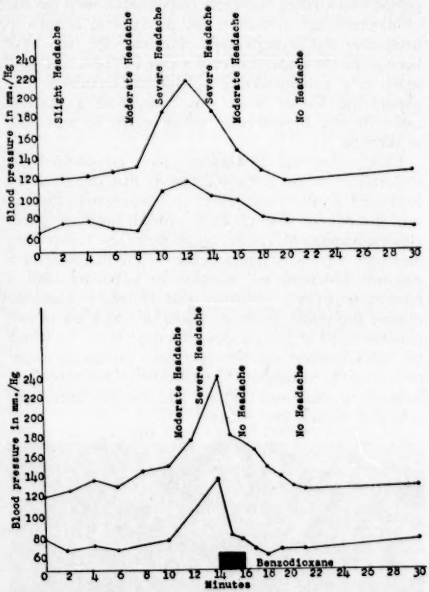


Fig. 1.—Paroxysmal headache attack, above, without treatment and, below, with intravenous administration of piperoxan. The headache stopped, and the blood pressure fell almost immediately after injection of piperoxan. However, the untreated attack was so short that the test is hard to evaluate.

Special Studies.—The cold pressor test produced a rise in blood pressure from 130/70 to 145/75 without symptoms. Two histamine tests were done, and reactions to both were considered to be negative. In both tests 0.025 mg. of histamine base in 10 cc. of isotonic sodium chloride solution was injected rapidly into the cephalic vein. In the first test there was only a 10 point rise in the systolic pressure in four minutes. In the second test there was a drop from 120/70 to 90/40 and then a secondary rise to 125/60. In both instances injection of the histamine was followed immediately by a severe headache which lasted over 10 min. Administration of 0.25 mg. of epinephrine subcutaneously failed to produce symptoms of a rise in pressure. Deep massage over the left flank produced a rise in pressure of 20 points and a mild headache. Massage over the right flank produced only a slight headache without change in pressure. It is of interest that at operation the tumor was found on the right side.

During the height of an attack 20 mg. of piperoxan hydrochloride [5] was injected into the cephalic vein in two minutes. Immediately the patient was relieved of her headache. The blood pressure dropped from 235/140 to 185/80 within one minute after the injection of the piperoxan was started. In the next five minutes the pressure gradually came down to 135/70. During an average untreated attack there was a rapid rise in pressure to a peak and then a fall to normal; but we thought that the piperoxan produced a more rapid drop in pressure, and the relief of her symptoms certainly was more dramatic than that following an average headache without treatment. This difference is shown in Figure 1. The patient was given intravenously 50 mg. of dibenamine® hydrochloride [6] in 500 cc. of isotonic sodium chloride solution on April 21. She experienced no abnormal reactions from the drug. The headaches subsided for a period of three days. The blood pressure was taken four times a day until the time of operation; it did not go above 140/80 until April 24, when the patient began to complain of minor attacks of headache. That night the patient was given an epinephrine-response test. A solution of epinephrine (1 mg. per 100 cc. of isotonic sodium chloride solution) was allowed to drip slowly into the cephalic vein. There was a rise in blood pressure from 158/80

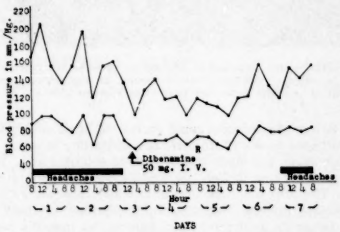


Fig. 2.—Reaction to a dibenamine® test. The only days in the hospital that the patient was free from headache were the three days following injection of dibenamine.®

to 210/90. Since there was a definite rise in pressure, we concluded that the dibenamine® was no longer having any effect and that it would be safe to operate. Bartels and Cattell [3] had not yet published their experience with the dibenamine® test, and its value was just beginning to be realized. We felt that in spite of a negative histamine-test reaction this patient should undergo bilateral exploration for a possible pheochromocytoma, and accordingly she underwent operation the following morning. The clinical picture as a whole, aided by the new dibenamine® test, was of more aid in the diagnosis than the histamine and piperoxan tests.

Operation.—On April 26 a long upper-left transverse abdominal incision was made by two of us (F. W. M. and I. R. T.). The splenic flexure was reflected medially, and the left adrenal region explored without evidence of tumor. The nonfunctioning hypoplastic kidney was felt to be a possible cause of hypertension and was removed. Exploration was made along the aorta in the search for a tumor of Zuckerkandl body or of the retroperitoneal ganglions. None was found. The incision was then extended across the entire abdomen to gain exposure of the right adrenal gland. The hepatic flexure was reflected medially, and a firm encapsulated round tumor 6 cm. in diameter was found in the adrenal gland medial and posterior to the upper pole of the right kidney. Manipulation of the tumor shot the blood pressure to 280/120. The tumor had two or three vascular pedicles, which were clamped and ligated. The mass shelled out easily, leaving some yellowish, normal-looking adrenal gland behind. As one vessel was being clamped, the blood pressure suddenly dropped

5. Benodaine.® Merck & Company, Inc.

6. The dibenamine® hydrochloride was obtained by Dr. Evan Calkins of Johns Hopkins Hospital and supplied by Smith, Kline & French Laboratories.

to 60/20, and an intravenous injection of a solution containing 5 mg. of epinephrine in 500 cc. of isotonic sodium chloride solution was started immediately. The pressure was well controlled by this method and was maintained at about 100/60. The patient received 500 cc. of whole blood during the operation.

During the first night after operation the needle used for the intravenous injection of the epinephrine solution became

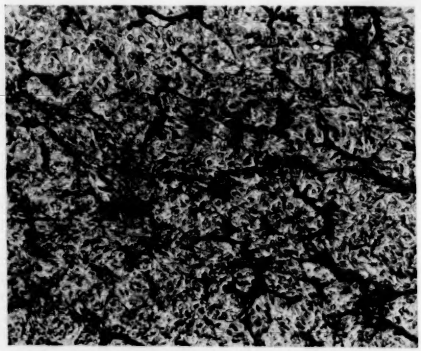


Fig. 3.—Microscopic appearance of tumor, showing a general resemblance to adrenal medullary tissue, consisting of noncompact groups of polygonal or irregular cells with intervening vascular channels.

plugged. Before the solution could be started again, the blood pressure dropped to 40/10. In the haste of starting injection of the solution again, too much was allowed to enter the vein. The pressure suddenly rose to 200/100, and the patient had a severe headache. The drip was regulated immediately and the patient had no further trouble. The epinephrine solution was used at intervals during the next three days. During this time the pressure, which was taken every five minutes night and day, was maintained at 90 to 140 mm. of mercury systolic by control of the rate of flow of the epinephrine solution.

During the first 24 hr. after operation the urinary output was only 75 cc., during the second 24 hr. it was 100 cc., and during the third 24 hr. it was 200 cc. From that time on the urinary output gradually increased and returned to normal. Because of the low urinary output during the first three days, the fluid intake was limited to 1,000 and 1,500 cc. every 24 hr. The patient received a second transfusion because of a low hemoglobin reading. After this she made a rapid and uneventful recovery. She was entirely free of headaches, and the blood pressure became stabilized around 130/80. Microscopic examination of the specimen confirmed the diagnosis of pheochromocytoma of the right adrenal.

Special Studies After Operation.—The fasting blood sugar was 105 mg. per 100 ml. The basal metabolic rate was — 20% and — 26%. Reaction to the piperoxan test was negative; there was a fall of only five points in the systolic pressure after the intravenous injection of 20 mg. Reaction to the histamine test was also negative. After the intravenous injection of 0.025 mg. of histamine base, there was a fall in pressure from 115/70 to 100/50 and then a very gradual rise to 160/100 in the next five minutes. The patient suffered from a headache, but she stated that it was not so severe or pounding in character as the ones she had had before operation. Strangely enough, the cold pressor test produced a sharp rise in blood pressure from 140/80 to 200/110.

COMMENT

This case is one of the few cases of demonstrated pheochromocytoma in which there was a negative reaction to a histamine test.[7] It is the sixth case reported [8] in which a favorable response followed the use of dibenamine[8] to control the paroxysmal attacks of headache and hypertension. Furthermore, we have been unable to find a report of a case of pheochromocytoma in a patient having a hypoplastic kidney. The hypoplastic kidney itself was considered a possible cause for the hypertension which might be amenable to surgery.

Calkins and his co-workers [9] have emphasized the importance of the histamine test as first described by Roth and Kvale [10] and report that reaction to the test was positive in five of their proved cases of pheochromocytoma. Moreover, until their last report they had been unable to find a report in the literature of a negative histamine-test reaction in a patient with a pheochromocytoma. Burrage and Halsted [11] also emphasize this point. Aranow [7] stated that he knew of two patients with a proved pheochromocytoma in which the histamine-test reaction had been repeatedly negative; however, details of these cases were not published. Recently Bartels and Cattell [3] had similar experiences with two of their four patients.

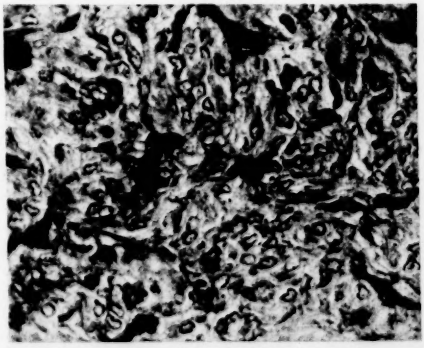


Fig. 4.—Same as Figure 3. Under high power.

In the case here reported the result of the piperoxan test of Goldenberg and his co-workers [12] was difficult to evaluate because of the brief duration of the attacks. Fortunately, we had the apparatus for administration set up when the patient had a paroxysmal attack. An average attack is compared with and without the administration of the drug in Figure 1.

7. Aranow, H., Jr.: The Differential Diagnosis of Pheochromocytoma, M. Clin. North America **34**: 757-767 (May) 1950.

8. (*a*) Bartels and Cattell.[3] (*b*) Hoch, G. F.: Pheochromocytoma with Paroxysmal Hypertension, J. Urol. **61**: 473-476 (March) 1949. (*c*) Litman, N. N., and State, D.: Pheochromocytoma: Use of N,N-Dibenzyl-B-Chloroethylamine (Dibenamine®) and Piperidino-Methyl-Benzodioxane (Benzodioxane®) in Surgical Therapy, Pediatrics **4**: 735-743 (Dec.) 1949. (*d*) Spear and Griswold.[6] (*e*) Spühler, Walther, and Brunner.[6]

9. (*a*) Calkins, E., and Howard, J. E.: Bilateral Familial Phaechromocytomata with Paroxysmal Hypertension: Successful Surgical Removal of Tumors in 2 Cases, with Discussion of Certain Diagnostic Procedures and Physiological Considerations, J. Clin. Endocrinol. **7**: 475-492 (July) 1947. (*b*) Calkins, E.; Dana, G. W.; Seed, J. C., and Howard, J. E.: On Piperidylmethyl-Benzodioxane (933-F): Hypertension, and Pheochromocytoma, J. Clin. Endocrinol. **10**: 1-11 (Jan.) 1950. (*c*) Calkins, E., and Howard, J. E.: Current Methods of Diagnosis of Pheochromocytoma, J. A. M. A. **145**: 880 (March 24) 1951.

10. Roth, G. M., and Kvale, W. F.: Tentative Test for Pheochromocytoma, Am. J. M. Sc. **210**: 653-660 (Nov.) 1945.

11. Burrage, W. C., and Halsted, J. A.: Adrenal Medullary Tumor (Pheochromocytoma): Case Report with Successful Operation, Ann. Int. Med. **28**: 838-849 (April) 1948.

12. Goldenberg, M.; Snyder, C. H., and Aranow, H., Jr.: New Test for Hypertension Due to Circulating Epinephrine, J. A. M. A. **135**: 971-976 (Dec. 13) 1947.

V 14
1951

We believe that the use of dibenamine® was a definite aid as a diagnostic procedure. Because of its prolonged action it had a great advantage over the piperoxan with its brief action. The only preoperative days in the hospital when the patient was completely free of headache and hypertension were after the use of dibenamine.® Figure 2 shows the prolonged effect of this drug.

The recent article by Bartels and Cattell [5] stated that epinephrine was not needed to combat the postoperative shock that may occur after the removal of the tumor because this condition could be explained on the basis of acute left heart failure resulting from excess of circulating epinephrine rather than from lack of circulating epinephrine. They advocate giving dibenamine® preoperatively to neutralize any excess of epinephrine produced by operative manipulation of the tumor. They state that any hypotension resulting from removal of the tumor can be controlled by placing the patient in the Trendelenburg position. Our case did not seem to support this view. During the operation manipulation of the tumor produced a sudden rise in blood pressure from 115/84 to 280/140; when the pressure quickly fell to 110/70 and remained at this level until 15 min. later, when on clamping one of the larger vessels supplying the tumor the pressure suddenly dropped to 60/20. At this point the intravenous injection of epinephrine solution was started, and the pressure quickly came up to the previous level of 120/80 and then was gradually decreased to 100/70 by controlling the drip. Also the drop in pressure to 40/10 the night after the operation, when the needle in the epinephrine drip administered intravenously became temporarily plugged, as has been previously described, seems to bear out the conclusion that epinephrine is needed to control these sudden drops in blood pressure. Litman and State [8c] report a fatality in the case of an 11-year-old girl who received dibenamine® preoperatively and then went into profound irreversible shock immediately after removal of a pheochromocytoma. She was given large doses of epinephrine but without effect. The dibenamine® apparently had rendered the patient refractory to epinephrine.

We were well pleased with the transperitoneal approach through a generous transverse incision completely across the abdomen, even though the patient was obese and "short coupled" and had had three previous laparotomies. Some operators [13] warn against laparotomy and recommend the lumbar or paravertebral approach. Hatch and his associates [13a] even advocate keeping operative time to a minimum by the use of two surgical teams exploring the two sides at once. Operative shock is the dreaded complication, but it is our opinion that this is unrelated to the operative approach and is due to sudden removal of the epinephrine-producing tumor. In our patient intravenous administration of dilute epinephrine solution stabilized the blood pressure nicely, and the experience of others apparently has been similar.[14] We believe laparotomy is especially indicated when the site of the tumor is undetermined because it is a less formidable procedure than bilateral extraperitoneal exploration, and it allows exploration of the less common intra-abdominal sites of the tumor.

SUMMARY

A case of pheochromocytoma successfully treated by surgery is reported. The preoperative diagnosis was based largely on the clinical picture, supported by the dibenamine® test, which proved to be the most useful single diagnostic test. It is our opinion that dibenamine® should not be given immediately before operation because it renders epinephrine unable to control the hypotensive state which usually occurs when the blood supply to the pheochromocytoma is clamped. The negative reaction to the histamine test in this case is emphasized. The diagnosis was further complicated by the presence of a hypoplastic kidney. The transperitoneal surgical approach is advocated.

8 W. Madison St. (Dr. Trimble).

13. (*a*) Hatch, F. N.; Richards, V., and Spiegl, R. J.: Adrenal Medullary Tumor (Pheochromocytoma), Am. J. Med. **6**: 633-642 (May) 1949. (*b*) Spühler, Walther and Brunner.[4b]

14. Calkins and Howard.[9a] Calkins, Dana, Seed, and Howard.[9b] Forsgren, A. L.; Nesset, W. D., and Anderson, D. M.: Pheochromocytoma of the Adrenal with Successful Removal: Report of a Case, Minnesota Med. **32**: 170-174 (Feb.) 1949.

COMPLETE TRANSPOSITION OF THE MAIN ARTERIAL STEMS

REPORT OF A CASE

A. D. Nichol, M.D.
and
A. J. Segal, M.D., Cleveland

Complete transposition of the main arterial stems represents one of the severe types of congenital cardiac defects, and, in the absence of associated cardiac or vascular anomalies, it is compatible with only transient survival after birth.[1] Reviews of the phylogenetic theories applicable to the subject have been made by Lev and Saphir [2] and by Harris and Farber.[3] Recently Hanlon and Blalock [4] collected 100 cases from the literature and added 23 instances from the autopsy data at Johns Hopkins Hospital. Of the 123 patients, six survived longer than 10 years, one of these lived to 19, and the oldest reached 56 years of age; the average survival time in the remaining 117 cases was five and one-half months.

Although the associated cardiac or vascular anomalies are primarily responsible for the clinical syndrome in complete transposition,[5] it is of interest that extensive cardiac anomalies may be present with minimal or no

From the Division of Medicine and the Division of Laboratories and Research, St. Luke's Hospital.

The title is adopted from Patten, B. M.: Human Embryology, Philadelphia, The Blakiston Company, 1947, p. 681. It is used here in preference to the conventional term of complete transposition of the great vessels of the heart because it accurately expresses the anomaly of embryonic development.

1. Abbott, M. E.: Atlas of Congenital Cardiac Disease, New York, American Heart Association, 1936.

2. Lev, M., and Saphir, O.: Theory of Transposition of Arterial Trunks Based on Phylogenetic and Ontogenetic Development of Heart, Arch. Path. **39**: 172 (March) 1945.

3. Harris, J. S., and Farber, S.: Transposition of Great Cardiac Vessels, with Special Reference to Phylogenetic Theory of Spitzer, Arch. Path. **28**: 427 (Oct.) 1939.

4. Hanlon, C. R., and Blalock, A.: Complete Transposition of Aorta and Pulmonary Artery: Experimental Observations on Venous Shunts as Corrective Procedures, Ann. Surg. **127**: 385 (March) 1948.

5. Taussig, H. B.: Congenital Malformations of the Heart, New York, Commonwealth Fund, 1947.

physical signs directly implicating the heart. This is well illustrated by the patient here described, who lived to the relatively advanced age of 29 years, in only the last three of which she was in congestive failure. A correct diagnosis was not made while she was alive. Furthermore, the patient was subjected to a lobectomy of the

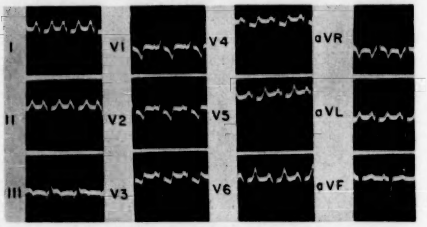


Fig. 1.—Electrocardiogram of patient L. H.

lung in an attempt to relieve severe cyanosis and dyspnea which were attributed to an intrinsic arteriovenous defect in the lung.

REPORT OF A CASE

L. H., a white married woman aged 28, was seen in March, 1948. Her chief complaints were persistent discoloration of the skin and abnormal fatigue with unusual shortness of breath after exertion. The patient was a recalcitrant, introspective person, and some details of her history were accepted with reservations.

Her health had been good until she was in an automobile accident at 6 years of age. Although she had not been obviously injured, shortly thereafter her skin became cyanotic and her exercise tolerance was limited. Numerous hospital admissions resulted in a variety of diagnoses and recommendations. She was employed in several sedentary occupations and attempted to lead a normal life which included marriage at 26 years of age. Symptoms and signs of mild congestive cardiac failure then developed. Improvement followed the use of digitoxin, but the patient was unable to climb one flight of stairs or walk 500 yards without exhaustion and severe dyspnea. In September, 1947, the upper lobe of the right lung was removed for a suspected arteriovenous aneurysm. The postoperative course was extremely complicated, but eventually the patient regained her preoperative level of physical activity.

When first admitted to St. Luke's Hospital on March 6, 1948, the patient weighed 88 lb. (40 kg). She was frail and symmetrically developed, with marked cyanosis of the trunk, face and upper extremities, but only moderate cyanosis of the lower extremities and feet. The fingers and toes were clubbed. All peripheral pulses were palpable. The brachial blood pressure was 94/80. The spleen was slightly large but soft. The first heart sound was doubled, the second sound was unusually clear and distinct in the second left intercostal space. No cardiac murmurs were heard. The remainder of the physical examination was normal.

The urine showed 1 + protein, an occasional hyaline cast, 6 to 8 red blood cells, and 4 to 6 white blood cells per high power field. The volume of urine varied from 25 to 300 ml., during a Mosenthal test, while the specific gravity varied only from 1.012 to 1.014. The red blood cell count was 8,250,000 per cubic millimeter; hemoglobin value, 25 gm. per 100 cc.; and white blood cell count, 5,000 per cubic millimeter. The hematocrit value was 75%. The nonprotein nitrogen was 52 mg. per 100 cc. and creatinine 2.1 mg. per 100 cc. The ether "circulation time" was 11.4 sec. while the sodium cyanide time was 3.0 sec. The endpoint was definite in each instance; the sodium cyanide caused an intense respiratory stimulation. The oxygen saturation of the radial arterial blood was 63%. The electrocardiogram (Fig. 1) was obtained with the lead wires correctly applied.

Fluoroscopic studies and roentgenograms of the chest in posterior-anterior and oblique projections added little additional information, although an apparent slight left-sided enlargement of the heart was present. Despite the evidence of renal impairment and azotemia it was decided to risk the dangers of iodopyracet (diodrast®) injection studies of the heart. Fifty milliliters of 70% iodopyracet was injected into the cubital vein, and eight films were made in 12 sec. The first film exposed approximately one second after iodopyracet injection showed filling of both the right and left sides of the heart (Fig. 2). The subsequent films showed the aorta and cephalic arteries densely outlined, while fainter vascular trunks were interpreted as a patent ductus arteriosus, the main stem, and the left main branch of the pulmonary artery. The segment of the aorta from the beginning of the arch to the entrance of the ductus arteriosus was definitely narrowed (Fig. 3). Unfortunately, the patient had a severe shock-like reaction with transient apnea during this examination. She refused to cooperate in further studies and was lost from observation.

Although peripheral edema was controlled, the patient continued to have a nonproductive cough and mild orthopnea at rest. She was unable to walk slowly 100 yards without severe dyspnea and exhaustion. Recurrent mild hemoptysis and intermittent rectal bleeding preceded death on March 19, 1949.[6]

Necropsy.—Postmortem examination was done in a neighboring city. The following organs and tissues, fixed in formalde-

Fig. 2.—Left anterior oblique view, exposure one second after 50 ml. of 70% iodopyracet injection; *1* right ventricle, *2* left ventricle.

hyde, were made available to us for further dissection and examination: heart, lungs, one kidney and portions of spleen, lymph node, liver, pancreas, ovary, intestine, and vertebra.

The heart had been previously opened, but it retained a globular shape. It weighed 370 gm. Fibrous pericardial adhesions were present anteriorly at the apex and posteriorly at the base. The left atrium was only slightly dilated, while the right appeared markedly dilated. The wall of the latter was thickened to approximately twice the normal thickness. The atria intercommunicated freely by means of numerous irregular oval to slit-like defects

6. Dr. Ben V. Meyers of Elyria, Ohio, provided us with the subsequent history of the patient. The opportunity to examine the material obtained at postmortem examination is due to Dr. B. Chomet, Elyria, Ohio.

V 14
1951

in the interatrial septum (Fig. 4). The orifices of the venae cavae and of the pulmonary veins were in their normal locations. The tricuspid valve ring measured 9.2 cm. in circumference; it was thickened and focally calcified. The tricuspid valve leaflets showed no gross abnormality. The mitral valve ring measured 9.0 cm. in circumference. The mitral valve leaflets were normal. The right ventricle was markedly dilated, and the myocardium

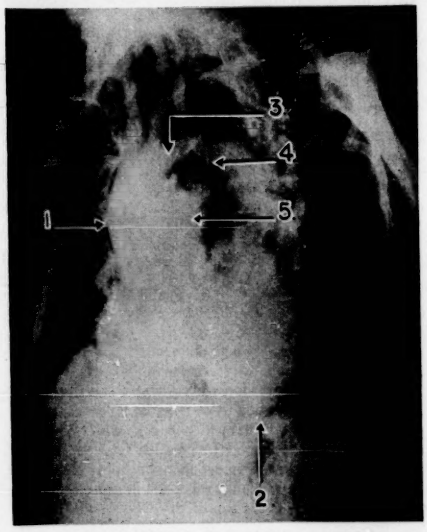


Fig. 3.—Left anterior oblique view, exposure two and one-half seconds after iodopyracet injection; *1* aorta, *2* left ventricle, *3* coarctation of aorta, *4* patent ductus arteriosus, *5* main pulmonary artery.

was markedly thickened, measuring 1.3 cm. in thickness at the conus. The membranous portion of the interventricular septum was redundant and bulged into the left ventricle. There was a slit-like defect, 0.5 cm. in length, near the inferior border of this portion of the septum. The margins of the defect overlapped slightly, producing a valve-like flap favoring a fluid flow from the right to the left ventricle. There was complete transposition of the main arterial stems. The aorta arose from the pulmonary conus. The corresponding valve ring measured 5.0 cm. in circumference, and the cusps showed no abnormalities. The coronary arteries originated at the base of the aorta. The pulmonary artery arose from the left ventricle. The corresponding valve ring measured 6.0 cm. in circumference. The cusps of this valve showed moderate thickening at the base and at the line of closure. There were slight adhesions at the commissures and a warty calcific plaque, 0.3 cm. in diameter, was present on the ventricular surface of one of these. The myocardium of the left ventricle measured 1.6 cm. in maximum thickness. The papillary muscles of the left ventricle were robust and the columnae carneae were prominent. Except for the interventricular septal defect previously mentioned, the endocardium of the left ventricle was not remarkable. Dissection of the muscular mass of the individual chambers was made after removal of subepicardial fat. The left ventricular myocardium weighed 145 gm., and the right ventricular myocardium also weighed 145 gm. The average weight of the left ventricular myocardium of the adult male is 130 gm. The average normal ratio of left ventricular weight to right ventricular weight is 1.85:1 with a range of from 1.7:1 to 1.95:1.[7] The intimal surface of the first portion of the aorta was smooth. As correctly as could be determined in the dissected state, the innominate, left common carotid, left subclavian, and intercostal arteries showed no anomalies of origin or of diameter of the orifices. The ductus arteriosus was widely patent, measuring 0.5 cm. in diameter at both orifices. There were warty calcific plaques about these orifices. The circumference of the aorta was uniformly 5 cm. up to the level of the origin of the innominate artery, diminished sharply to 3 cm. at the level of the ductus arteriosus, increased slightly to 3.6 cm. beyond this point, and increased further to approximately 5 cm. in the descending portion. The pulmonary artery, its branches, and the intrapulmonary arteries showed moderate intimal thickening with numerous irregular atheromatous plaques.

The lungs showed marked edema and congestion.

The one kidney weighed 280 gm. Congestion of the pyramids was the only apparent gross abnormality. The weight and the gross appearance of the opposite kidney are not known.

Microscopic Examination.—Multiple sections from representative portions of the walls of all chambers of the heart showed marked hypertrophy of individual myocardial fibers. Only very slight focal fibrosis of the myocardium of both ventricles was present. The endocardium showed atheromatous and calcific plaques in the locations described grossly.

Sections of both lungs showed edema, acute passive congestion, and compensatory emphysema. In all sections all branches of the pulmonary artery showed moderate to marked intimal thickening. Many of these had intimal atheromatous plaques.

A section of kidney showed marked acute passive congestion. No other abnormality was noted.

A section of spleen showed marked acute passive congestion.

Sections of other organs were noncontributory.

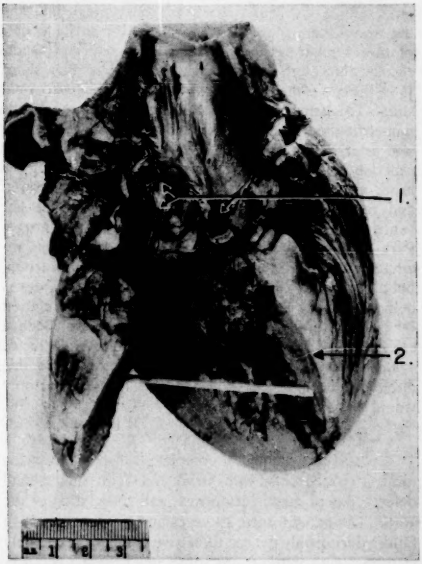


Fig. 4.—Heart opened with left atrium and left ventricle exposed. *1*, some of the numerous atrial septal defects. *2*, left ventricular wall 1.6 cm. in thickness. The slitlike interventricular septal defect cannot be seen.

COMMENT

This case study emphasizes some of the observations which have been recorded in the study of congenital cardiac defects.

7. White, P. D.: Heart Disease, ed. 3, New York, The Macmillan Company, 1944, p. 590.

Extensive malformations of the heart and great vessels may be present with no associated murmurs. In the absence of murmurs, accessory methods of examination may provide information of diagnostic value. It is possible to determine the existence of right to left shunts by such methods. The simplest of these is the correlation of right and left "circulation times." Angiocardiographic study can often show proof of a venous-arterial shunt of sufficient magnitude even though the responsible defect cannot be visualized by current techniques generally available. Both of these diagnostic aids should be used with caution, because the delivery of toxic substances in relatively high concentration into the arterial circulation is attended with some hazard.

When a significant difference in degree of cyanosis of the upper and lower extremities is due to a congenital cardiovascular defect, then this defect is invariably of a complex type. The circulation through these complex defects may be determined by current methods of cardiac catheterization. With the information so obtained and with the total oxygen consumption, it is then possible to calculate the output of both the right and left ventricles and to approximate the direction and magnitude of vascular shunts.[8]

Our patient, unfortunately, would not consent to catheterization of the heart. However, the clinical data and the postmortem observations indicate the major course of the circulation. Venous blood was returned to the right atrium by the venae cavae and the coronary sinus. It is probable that both right to left, and left to right shunts occurred between the two atria through the numerous interatrial septal defects. This mixed venous and arterial blood then entered the right ventricle and was delivered by the aorta to the arteries supplying the head, upper extremities, and trunk. The mixed arterial and venous blood in the left atrium entered the left ventricle and was discharged into the pulmonary artery. Part of this mixed arterial and venous blood was recirculated through the lungs to return to the left atrium, but a portion of this same arterial and venous blood was delivered to the aorta and to the peripheral circulation by passing through a patent ductus arteriosus. Such a circulation would account for the difference in degree of cyanosis of the upper and lower extremities. Had this difference been noted, it is likely that the lobectomy would not have been done.

SUMMARY

A report is presented of complete transposition of the main arterial stems, with atrial and ventricular septal defects, patent ductus arteriosus, and coarctation of the aorta. The patient lived 29 years and was in congestive failure during only the last three years. She was extremely cyanotic, with marked limitation in exercise tolerance. No cardiac murmurs were present, and there was an appreciable difference in the degree of cyanosis of the upper and lower extremities. The peripheral pulses were equal. Paradoxical results were obtained in the determinations of pulmonary and peripheral "circulation times." The presence of a right to left intracardiac shunt of the circulation was corroborated by roentgenography after the intravenous injection of 70% iodopyracet contrast medium.

Supplementary methods of diagnosis of congenital cardiovascular defects are briefly discussed.

10515 Carnegie Ave.

8. Cournand, A.: Cardiac Catheterization in Congenital Heart Disease, New York Commonwealth Fund, 1949. Dexter, L.; Haynes, F. W.; Burwell, C. S.; Eppinger, E. C.; Seibel, R. E., and Evans, J. M.: Studies in Congenital Heart Disease: The Techniques of Venous Catheterization, J. Clin. Investigation **26**: 547 (May) 1949. Bing, R. J.; Vandam, L. D., and Gray, F. D., Jr.: Physiological Studies in Congenital Heart Disease: Procedures, Bull. Johns Hopkins Hosp. **80**: 107 (Feb.) 1947. Burchell, H. B.; Parker, R. L.; Dry, T. J.; Wood, E. H.; Pender, J. W., and Pugh, D. G.: Cardiac Catheterization in the Diagnosis of Various Cardiac Malformations and Diseases, Proc. Staff Meet., Mayo Clin. **23**: 481 (Oct. 27) 1948.

LEFT VENTRICULAR HYPERTROPHY IN INFANTILE POLYCYSTIC KIDNEY DISEASE

ELECTROCARDIOGRAPHIC AND POST-MORTEM EVIDENCE

Robert H. Parrott, M.D., Washington, D. C.
Lester G. Joseph, M.D.
and
Robert R. Nesbit, M.D., New Haven, Conn.

In a review of the recent literature 51 cases of polycystic kidney disease in stillborn infants or in infants not older than 19 mo. have been abstracted. Only four of the reports recorded post-mortem findings on the heart.[1] One of these showed autopsy evidence of left ventricular hypertrophy.[1b] In no case report was there mention of electrocardiographic findings. It would therefore appear to be of value to present a case in which these findings are reported.

REPORT OF A CASE

G. B., a white boy, was born at the Hospital of St. Raphael as a fullterm normal delivery. No abnormalities were recorded at the time of birth, at discharge, or at circumcision when the infant was two weeks of age. Six weeks postpartum the infant was noticed to be irritable and to have slight frequency of urination and a low fever. When palpation of the child's abdomen disclosed enlarged bilateral masses, he was admitted to the hospital.

Physical examination revealed an alert, acutely ill, undernourished white boy. The temperature was 101.6 F., the pulse rate 160, and the respiration rate 40. There was no dyspnea, cyanosis, cough, or clubbing of the fingers or toes. Blood pressure was 215/125 in the upper extremities and 220/130 in the legs. The examination findings were normal except for the abdominal findings. Symmetrical, firm, apparently nontender, nonmovable masses were felt in the lateral abdomen extending bilaterally from the costal margins to the iliac crests. The liver and spleen were not palpable.

Several hours after admission marked dyspnea developed. Fine-crackling rales were heard in the right lower lung fields posteriorly. A diagnosis of congestive heart failure was made, and the infant was given digitalis, oxygen, and penicillin. These, in addition to morphine for paroxysmal dyspnea, were the main instruments of treatment throughout the infant's hospital course. Subsequent examinations revealed development of a varying grade I to III apical systolic murmur, enlargement of the liver,

Resident, Children's Hospital, formerly Intern, Hospital of St. Raphael (Dr. Parrott); Pathologist, Hospital of St. Raphael (Dr. Nesbit).
From the Pediatric Service of William C. McGuire, M.D., and the Department of Medicine (Dr. Joseph), Hospital of St. Raphael, New Haven, Conn.

1. (*a*) Roos, A.: Polycystic Kidney, Am. J. Dis. Child. **61**: 116 (Jan.) 1941. (*b*) Oppenheimer, G.: Polycystic Disease of the Kidney, Ann. Surg. **100**: 1136 (Dec.) 1934. (*c*) Shands, H.: Simultaneous Occurrence of Polycystic Kidneys and Erythroblastosis Fetalis, Arch. Path. **40**: 72 (July) 1945. (*d*) Clark, B. P., and Gipson, A. C.: Polycystic Disease of the Kidneys in a Newborn Infant, J. Pediat. **32**: 718 (June) 1948.

V 14
1951

and edema of the lower extremities. The infant's course was rapidly downhill with recurrent episodes of dyspnea and cyanosis. He died 32 days after admission at the age of 11 weeks 5 days.

Significant laboratory data included a progressive moderately severe hypochromic anemia, continued slight albuminuria with occasional hyaline and granular casts, and a gradual elevation of nonprotein nitrogen from 46 mg. per 100 cc. at admission to 57 mg. per 100 cc.

X-rays of the chest and abdomen in AP position (see Fig. 1) and a lateral view of the abdomen (see Fig. 2) showed "somewhat flasklike appearance of the heart suggestive, but not diagnostic, of congenital deformity" and "large retroperitoneal masses displacing the bowel loops anteriorly." An electrocardiogram, taken at eight weeks of age, was similar to one taken at six weeks and is reproduced in Figure 3. This electrocardiogram was compared with those of 22 normals [2] in which 11 leads (1, 2, 3, aVr, aVl, aVf, V_1, V_2, V_4, V_5, and V_6) were taken on infants from one to three months of age.

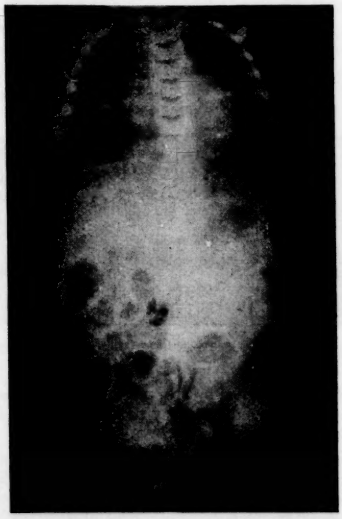


Fig. 1.—X-ray of the chest and abdomen in AP position.

The rate in this electrocardiogram varies from 158 to 176. The axis is +62 degrees, and the position of the heart is semivertical. The P wave, Q-T interval, and QRS complex are within normal limits. The P-R interval is 0.08 sec., which, despite the rate, is relatively decreased for this age. The R wave in lead 2 is tall, and the R wave in lead 3 may be slightly taller than normal. The S wave in lead 1 is absent, and this finding did not occur in the electrocardiograms of the 22 normals. The T waves in leads 1 and 2 are inverted. The T wave in lead 3 is taller than those in the electrocardiograms of the normals. The T wave in lead 3 is greater than the T wave in lead 1. In only one electrocardiogram of the normals did the voltage of the T wave in lead 3 even equal that of the T wave in lead 1, and this was in that of an infant one month of age. The S-T segment in lead 1 is elevated and the S-T segments in leads 2 and 3 depressed.

A small Q wave is present in leads V_1 and V_2. The R wave in lead V_4 is tall, and in only one electrocardiogram of the normals was there an R wave as tall as in this record. A deep S wave is present in leads V_1 and V_2. The S wave in lead V_4 is borderline low in voltage compared with that of the normals. The R:S ratio is reversed from that normally seen at this age. In the electrocardiograms of the normals there may be a re-

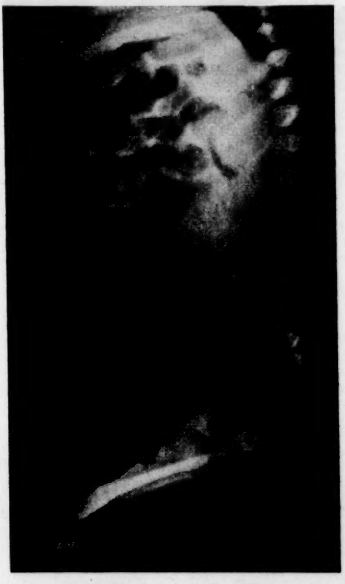


Fig. 2.—Lateral view of the abdomen.

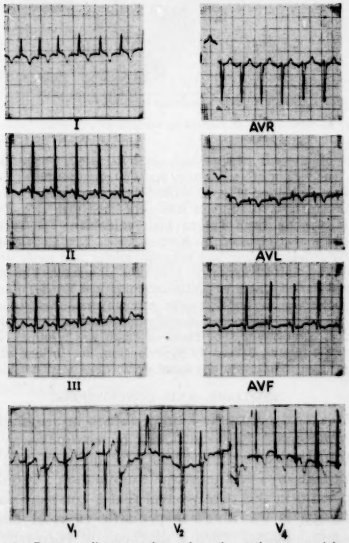


Fig. 3.—Electrocardiogram taken when the patient was eight weeks old.

2. Alimurung, M. M.; Joseph, L. G.; Nadas, A. S., and Massell, B. F.: Unpublished data.

versal of the ratio in any one of the two leads, but in this electrocardiogram the ratio has the appearance of that seen in the adult tracing. The S-T segment in lead V_4 is depressed. The T waves in leads V_1 and V_2 are upright. The T wave in lead V_1 was never upright in the electrocardiograms of normals of this age, and only very rarely was the T wave upright in lead V_2. The T wave is deeply inverted for this age.

The sum of the R waves in leads 2 and 3 is relatively tall, and the R wave in lead aVf is likewise tall. The T wave in lead aVf is diphasic, a finding not seen normally. The T wave in lead aVl is deeply inverted. The T wave may be inverted normally in lead aVl but not so deeply as in this electrocardiogram. The T wave in lead aVr is upright. This is definite abnormality. The conclusions concerning this electrocardiogram were that the tracing illustrated left ventricular hypertrophy. The presence of a small Q wave in leads V_1 and V_2 suggested the possibility of right ventricular hypertrophy as well, but this impression was not conclusive.

Post-Mortem Findings.—Description of post-mortem findings will be limited to the following: The weight of the heart was 83 gm. (normal is 23 gm.). Left and right ventricular hypertrophy were demonstrated grossly, and there was microscopic evidence of hypertrophy, degeneration, and fibrous replacement of myofibrils. The weight of the right lung was 70 gm., the left 45 gm. (normal is 35 and 30 gm.). Gross and microscopic examination showed congestion of all lung fields with scattered

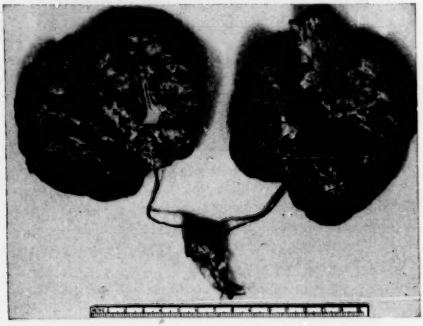


Fig. 4.—Photograph of kidneys showing large and small cystic foci.

areas of alveolar rupture and emphysematous and atelectatic foci. The weight of each kidney was 180 gm. (normal is 20 gm.). Gross examination (Fig. 4) showed large and small cystic foci. On microscopic study these foci were lined with epithelium of height varying from flat to high columnar. The renal parenchyma was replaced by fibrous tissue. The glomeruli were greatly reduced; many had pyknotic nuclei, and some were replaced by fibrous tissue of a hyaline character. The tubules showed varied stages of epithelial-lining cell necrosis, and the best preserved showed intensive parenchymatous degeneration. The spleen and liver were intensely congested and showed areas of focal hemorrhage. The cause of death was terminal congestive heart failure, caused by hypertension, due to lack of renal tissue in an infant with advanced cystic disease of the kidneys.

SUMMARY AND CONCLUSIONS

A case of polycystic kidney disease in an infant has been presented. Left ventricular hypertrophy was demonstrated electrocardiographically in vivo and was confirmed by post-mortem examination. From the experience in this case we feel that a complete cardiac evaluation is warranted in pediatric cases of bilateral abdominal masses when a diagnosis of polycystic kidney disease is entertained. This would seem important from the standpoint of prognosis and treatment.

13th and W Sts., N. W. (Dr. Parrott).

MILROY'S DISEASE

Weston Cook, M.D.
and
Austin T. Moore, M.D., Columbia, S. C.

During the past four years, five patients with Milroy's disease, or chronic hereditary lymphedema, have been treated by us (figure). These were found in two generations of a family. Four additional cases in other members of the family were described to us, but we did not see them. Because of the obscure nature and relative rarity of this condition and because of our experiences with various forms of treatment, these cases are being presented.

In searching through the English literature published since 1892, when this condition was first described, we have been able to find approximately 30 similar families, comprising approximately 125 cases. A number of theories concerning the cause of the disease have been suggested by various authors, but no definite cause has been proved. We have attempted a thorough investigation of each of these cases along the conventional lines and

Five patients, all members of the same family, with chronic hereditary lymphedema.

along lines suggested by previous authors. No constructive evidence pointing to any possible causative factor has been found.

Four of these patients were under treatment through a state crippled childrens' program and attended an orthopedic camp where they were closely observed. Since two of these cases presented bilateral involvement of the lower extremities, it was possible to carry out a fairly extensive treatment program using one of the extremities as a control. The experiences in this treatment have been interesting as well as instructive.

REPORT OF CASES

CASE 1.—H. D., a white female aged 9, was born with some swelling involving both knees. The mother stated that because of the previous family history of this condition she recognized the deformity and was not unduly concerned about it. The child was first seen in The Crippled Childrens' Clinic of the South Carolina State Board of Health early in 1947. She complained of a growth on one toe that prevented her from wearing shoes. The growth appeared to be a skin papilloma nearly 1 cm. in diameter, attached by a small peduncle to the dorsum of the second toe. It had an irregular, warty appearance and was not tender. Numerous deep fissures were present on the other toes. There was also present a firm, rubbery edema of both lower extremities below the knees. This was most pronounced over the dorsa of the feet. The swelling that was present did not pit on pressure and could not be decreased materially by the use of pressure dressings. There was no complaint referable to the swelling of the extremities. The white blood cell count was 8,450; red

V 14
1951

blood cell count, 4,000,000, and the hemoglobin value, 73%. The differential count revealed the following levels: neutrophils, 40%; lymphocytes, 24%, monocytes, 2%, and eosinophils, 34%. Urinalysis showed results negative for albumin and sugar. Ova of Necator americanus were found in the stool specimen. For several months this child was treated with large shoes, elastic dressings, and oily massage. When she showed no improvement under this treatment, she was hospitalized for surgery. At operation, the projection of the dorsum in the second toe was removed. In addition, the dorsal aspect of the foot was explored and the entire mass there located was removed. The tissue encountered and removed was shiny, white, firm and avascular. It appeared partially to involve the skin over the dorsum of the foot and was dissected from it with some difficulty. The incision was carried to the tendons of the dorsum of the foot, and a thorough removal was performed.

Pathological Report.—Three pieces of tissue, all labeled as having come from the right foot, were examined. One piece was a rounded, firm, coarsely granular skin papilloma measuring 0.5 cm. in diameter. The second piece was glistening white in color and very resistant to the sectioning knife, and it gave the impression of being dense fibrous tissue. It appeared to be completely avascular. The third piece of tissue was like the second in every respect except that it was smaller in size. It was 6 cm. long, 2.5 cm. wide and 1 cm. thick.

Microscopic sections of the first piece of tissue described above showed that it was a simple skin papilloma with a central core of unusually dense, fibrous, connective tissue. A moderate, chronic inflammatory process was present throughout the sections. Microscopic sections from the two other pieces showed that they were composed of unusually dense, fibrous, connective tissue that was undergoing extensive hyalinization. Blood vessels were few and far between. Those present had unusually thick walls. Scattered irregularly throughout this tissue there were rather numerous small and large accumulations of small, deep-staining, round cells that resembled lymphocytes.

The above-described sections of the tissue were composed wholly of connective tissue that appeared to have originated as part of a chronic inflammatory process, the nature of which was not known. There was no evidence that this was a specific type of inflammation, nor was there evidence of carcinomatous changes in the sections.

The diagnosis was simple skin papilloma with dense fibrous connective tissue from the dorsum of the foot.

After surgery, the patient wore a pressure dressing for approximately four weeks. Uneventful healing took place. This child was next seen in the clinic four months after leaving the hospital. It was evident then that some exacerbation was taking place. In the several years that have intervened since then, the right foot has returned essentially to same state as that prior to operation.

CASE 2.—M. A. D., a white female aged 14, was born with swelling involving both lower extremities, more pronounced in the feet but extending as high as the knees. The condition was recognized at birth as a familial condition, and no treatment was sought. During the first few years of her life, the swelling gradually became a little more noticeable. At the age of 10, because of difficulty in finding properly fitting shoes, she was admitted to the crippled childrens' program of the South Carolina State Board of Health through the efforts of a school nurse. Her case has been followed in the state's clinics since that time. No form of treatment that has been tried has proved of any benefit whatsoever.

The laboratory report gave the white blood cell count as 12,800, the red blood cell count as 4,600,000, and the hemoglobin as 90%. The differential count cited neutrophils, 48%, lymphocytes, 20%, monocytes, 6%, and eosinophils, 26%. Urinalysis showed results negative for albumin and sugar. The Mazzini and complement fixation tests were negative. A stool specimen revealed ova of N. americanus.

CASE 3.—M. D., a white male aged 13, was born with a slight swelling of his right foot. The condition was recognized at birth but no great concern was felt because of previous familial history. The condition gradually became a little more noticeable during the first several years of his life. At no time during his life has medical treatment been sought for any reason. He has been followed in the South Carolina State Board of Health Crippled Childrens' Clinic and by one of us (W. C.) only because of interest in the condition.

The laboratory report gave the white blood cell count as 9,700, the red blood cell count as 4,400,000, and the hemoglobin as 83%. The differential count cited these values: neutrophils, 64%; lymphocytes, 24%; monocytes, 6%, and eosinophils, 6%. Urinalysis showed results negative for albumin and sugar. The stool specimen was positive for ova of N. americanus.

CASE 4.—F. D., a white male aged 11, was born with swelling of the right foot and leg below the knee. The condition was recognized at birth because of previous familial history and gradually became a little more apparent during the first several years of life. At no time was medical advice or treatment sought. There has been no appreciable change in the condition of the lower extremity during the past several years.

The laboratory report gave the white blood cell count as 8,450, the red blood cell count as 5,225,000, and hemoglobin as 99%. The differential count yielded these values: neutrophils, 36%; lymphocytes, 24%; monocytes, 6%, and eosinophils, 34%. Urinalysis showed results negative for albumin and sugar. The Mazzini and complement fixation tests were negative. The stool specimen contained ova of N. americanus.

CASE 5.—Mrs. M. D., aged 40, mother of patients 1-4, stated that she was born with some swelling of the right leg and foot. This extended to the level of the knee. It had never caused her any appreciable difficulty, with the exception that the swelling was somewhat greater during her pregnancies. No medical treatment had ever been sought or administered. This patient was seen only in the follow-up of the treatment of the disease in her children. Examination of the lower extremities revealed a firm, rather rubbery edema involving the entire right lower extremity below the knee.

The laboratory report gave the white blood cell count as 7,500, the red blood cell count as 3,800,000, and the hemoglobin as 73%. The differential count cited polymorphonuclear cells, 55%; lymphocytes, 40%; monocytes, 4%, and eosinophils, 1%. Urinalysis showed results negative for sugar and albumin but occasional pus cells were seen microscopically. No treatment was desired or suggested in this case.

COMMENT

The five patients in one family, reported above, have all been observed or treated during the past four years. The four children have been followed closely in the State Crippled Children's Clinic of the South Carolina State Board of Health. An excellent opportunity for observation and trial of different forms of therapy was provided during their stay at the South Carolina Orthopedic Camp.

During a two weeks' stay at the camp in the summer of 1948, the girls, in particular, were given a series of different types of treatment. They were chosen because of the symmetrical involvement of both lower extremities. In each case one extremity was treated, while the other was used as a control. The forms of therapy attempted were pressure dressings, elastic bandages, elevation of one extremity for a period of 24 hr., physical therapy massage in the direction of venous return, and active foot and leg exercises.

After the use of an elastic bandage, on one lower extremity, snugly applied for a period of 24 hr., there was present in each case about a ½ in. (1.27 cm.) diminution in the circumference of the leg at the calf. The original state reappeared within three hours following resumption of activity without the pressure dressing. None of the other forms of therapy produced any significant change.

In the laboratory studies in each of these cases, there was present a definite eosinophilia. This was considered

to be a reaction to a hook-worm infestation, which had no relation to the condition of the feet.

In reviewing the literature on Milroy's disease, we found some discussion of the possibility of a neurogenic basis for the swelling of the feet. This author [1] described the presence of a spina bifida occulta in several of his cases. X-ray studies of the lumbar spine and pelvis in the cases reported above revealed no instance of any bony abnormality.

In a discussion of the familial background with the mother of this family, (Case 5, Mrs. M. D.) it was learned that the condition had long been present in her family. The children's great-grandparents had emigrated from Ireland, where the condition had been termed "the curse of the big foot." The children's mother did remember that her maternal grandfather had had one "big foot" and that he had told her a sister of his also had had "the big foot." The condition was not present in her mother but had appeared in one sister, with involvement of legs. Two other sisters and one brother had no evidence of involvement. One of the sisters, who did not have the condition herself, was reported to have had a daughter with "the big foot." Several other children, the patient did not know how many, were normal.

SUMMARY

Five cases of Milroy's disease in one family are reported. This condition is a hereditary trophic edema of the lower extremities.

The gross appearance of the tissue at the time of operation and the microscopic appearance of tissue sections indicate that, even if the original condition is on a basis of chronic lymphedema, eventually the process becomes one of a dense fibrous tissue reaction, approaching a fibrous tissue dysplasia.

A number of types of treatment are reported. None of these proved of significant value.

1517 Hampton St. (Dr. Cook).

1. Bloom, D.: New York J. Med. 41: 856 (April 15) 1941.

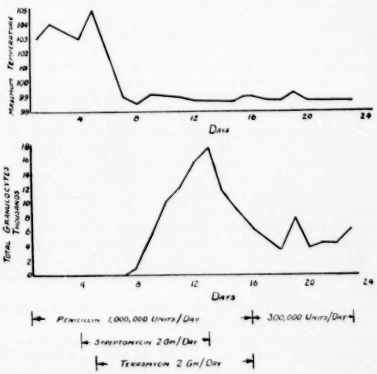
Cybernetics.—Electronic computing machines have been developed in response to the need for calculation on a scale at a speed far beyond human ability, a need arising largely from progress in atomic physics. . . . The study of control and communication in these new machines has led to the recognition of certain principles which are of general application to all such integrated systems, independent of their sources of energy. To cover this study of control, communication and co-ordination, the word "cybernetics" has been adopted. . . . "Cybernetics may be defined as the branch of science which studies, in complex mechanisms, the lines of communication which may be established between part and part, the information which may be transmitted along them, the control which each part thereby establishes over the other, and the co-ordination which is thereby achieved." Cybernetics makes contact with biology in two ways: firstly, since the body, and especially the brain, are complex systems, it is plausible to argue that the principles of cybernetics are applicable to biological systems equally with mechanical systems. Secondly, these new machines are found to behave in ways formerly regarded as distinctively biological. . . . Machines can be constructed whose behaviour bears a striking, though crude, resemblance to our own.—Alan Thompson, Cybernetics and Animal Integration, *Irish Journal of Medical Science*, July, 1951.

AGRANULOCYTOSIS FOLLOWING MAINTENANCE DOSAGE OF PRONESTYL

REPORT OF SEVERE CASE WITH RECOVERY

Miyoko Inouye, M.D.
Lieut. Jack Millar (MC), U. S. N.
and
James H. Townsend, M.D., Cambridge, Mass.

The effectiveness of "pronestyl" (procaine amide hydrochloride) in correcting ventricular arrhythmias has been well described by many authors.[1] Its apparent freedom from toxicity has led to its use with little fear of serious complications. Thus far only two cases of agranulocytosis following "pronestyl" administration, as yet unpublished, have come to our attention through the courtesy of the Medical Division of E. R. Squibb & Sons. The following is believed to be a case of agranulocytosis resulting from the use of "pronestyl" over a period of eight weeks.



Daily maximum temperatures and total granulocytes with relation to antibiotic therapy.

REPORT OF CASE

Mrs. C. R., an 87-year-old woman, was in good health until January, 1951, when she had her first symptoms of cardiac failure. On Jan. 29 she was brought into the accident room in severe acute pulmonary edema. She was extremely cyanotic, semicomatose, and appeared to be near death. The apex rate was 110 with gross irregularity shown by electrocardiogram to be due to very frequent ventricular premature beats (from different

From the Medical Service of Mount Auburn Hospital, Cambridge, Mass.

The opinions expressed in this article are those of the author and in no way reflect those of the Medical Corps of the United States Navy.

Dr. Geoffrey W. Rake and Dr. A. Dale Console of E. R. Squibb & Sons provided reference material and obtained permission from Dr. C. C. Griffith of Los Angeles and Dr. I. Snapper of New York to refer to their unpublished cases. Mrs. Mary Salisbury, Chief Technician in Hematology, examined the daily blood smears, and Dr. H. Edward MacMahon, Chief of Pathology, examined the bone marrow specimens.

1. Mark, L. C.; Kayden, H. J.; Steele, J. M.; Cooper, J. R.; Berlin, I.; Rovenstine, E. A., and Brodie, B. B. The Physiological Disposition and Cardiac Effects of Procaine Amide, J. Pharmacol. & Exper. Therap. **102**: 5, 1951. Irvin, C. W., Jr., and Cutts, F. B. Ventricular Tachycardia: Report of a Case in Which Pronestyl Was Effectively Used After Failure with Quinidine, J. A. M. A. **146**: 1282 (Aug. 4) 1951. Miller, H.; Nathanson, M. H., and Griffith, G. C.: The Action of Procaine Amide in Cardiac Arrhythmias, J. A. M. A. **146**: 1004 (July 14) 1951.

V 147
1951

foci). In the accident room she was given 400 mg. of "pronestyl" intravenously. There was immediate disappearance of the irregularity and return to normal sinus rhythm at a rate of 100—a dramatic improvement in her critical state of acute failure.

She was admitted to the ward and placed on a cardiac regimen, including oxygen, restricted sodium chloride (0.5-1.5 gm. daily), rapid digitalization with digitoxin followed by maintenance dosage of digitalis leaf, 0.1 gm. daily, ammonium chloride, mercaptomerin (thiomerin®) and quinidine sulfate, 0.2 gm. every four hours, later reduced to 0.2 gm. twice a day. She improved steadily, and was discharged on the 22d hospital day to a nursing home, essentially free of signs of failure, with instructions to continue digitalis leaf, 0.1 gm. daily, quinidine sulfate, 0.2 gm. twice daily, and ammonium chloride, 1.0 gm. three times a day.

The patient was admitted for the second time on May 8, 1951. For eight days she had had severe dyspnea, and cough productive of yellowish sputum, thought to be due to a respiratory infection. X-ray examination showed evidence of pneumonic consolidation. She was given penicillin with prompt clinical improvement and disappearance of the signs in four days.

Her blood on May 9 showed a white blood cell count of 8,800; segmented polymorphonuclear cells, 72%; stab cells, 8%; lymphocytes, 15%, and monocytes, 5%.

She was discharged on the ninth hospital day on the previous regimen, and was seen weekly in the outpatient department, where she showed minimal signs of congestive failure, and complained of weakness, anorexia, and mild diarrhea.

On May 31st, 1951, because of recurrence of distressing premature beats, she was changed from quinidine to "pronestyl," 0.25 gm. orally three times a day, which dosage she continued until July 25, 1951, except that she took none between July 12 and July 19. Total dosage over this eight-week period was 36.5 gm.

Her third admission was on July 25, 1951. For one day she had had fever, pain on swallowing, and tenderness in the neck, where she had noticed a swelling on the right side.

On admission temperature was 103 F.; pulse rate, 104; respiration rate, 28, and blood pressure 137/75. She was in acute distress and very restless. On physical examination, marked injection of the pharynx and tonsillar fossae without exudate or ulceration was the only positive finding. There was a tender mass in the right submaxillary region, 3 by 2 cm., nonfluctuant, freely movable, hot, and extremely tender. No other nodes were palpable. There were marked venous engorgement of the neck veins and many moist rales at both bases. The heart was markedly enlarged to the left with a harsh Grade IV systolic murmur at apex and base. The liver was palpable 3 fingerbreadths below the costal margin. There was Grade I pitting edema of the ankles.

The total white blood cell count on admission was 2,000 with 100% lymphocytes; hemoglobin was 12.4 gm., red blood cell count 3,450,000. Platelets were abundant. Urinalysis was essentially negative. The table shows the day-to-day changes in the total white cell and differential counts. Bone marrow aspirations from the iliac crest showed hypoplasia of all granulocyte elements with lack of myeloid maturation.

Course in Hospital.—The chart shows the daily maximum temperature record with relation to the total granulocytes and the antibiotics used. Penicillin was immediately started, 1,000,000 units per day, without apparent influence, the temperature continuing 103 to 104 F. On the fourth hospital day there was extensive yellow exudate in the pharynx, and a culture showed an alpha hemolytic Streptococcus. Streptomycin in a dosage of 2 gm. daily was added to the penicillin, also without apparent effect, and the patient appeared critically ill with temperature of 104.8 F. and was unable to swallow at all. The total white blood cell count at this time was 1,150 with 100% lymphocytes.

On the fifth hospital day terramycin hydrochloride was given intravenously in a dosage of 500 mg. every six hours, in addition to the other antibiotics. Within 18 hours the patient's temperature dropped sharply to normal and remained so.

The first return of any granulocytes to the peripheral blood was observed on the eighth day when the total white blood cell count was 4,000 with 23% granulocytes. Thereafter there was steady progression towards the normal, with a peak of 20,000 on the 13th day, subsequently dropping to 7,000. No disturbance of the red cells or platelets appeared at any time.

Clinical improvement paralleled the improved blood picture, and the patient became ambulatory on the 14th day. The antibiotics were gradually withdrawn after the temperature had been normal seven days. Terramycin (oral preparation was used after one day of intravenous administration) was withdrawn last.

A repeat bone-marrow examination on the 16th day showed a normal regenerating marrow.

The patient was discharged on the 23d day, apparently completely recovered from the agranulocytosis, and her cardiac status improved. On account of her age (87) and cardiac status, it was not considered advisable to experiment with effect of further doses of "pronestyl" on the white blood cells.

SUMMARY AND CONCLUSION

A case of agranulocytosis in an 87-year-old woman, with recovery, is described. The patient had been on a continuous maintenance dosage of .25 gm. "pronestyl" (procaine amide hydrochloride) three times a day, starting eight weeks before symptoms developed, with the exception of the seventh week. Quinidine sulfate in a dosage of 0.2 gm. twice daily had been given prior to this time for a period of four months, and a white blood cell count of 8,000 had been observed near the end of this period, so that it appears reasonable to rule out quinidine as a causal factor in the agranulocytosis.

No other medications were used which have been known to cause agranulocytosis.

During the recovery phase, the patient showed a myeloid reaction with a peak of 20,000 on the 13th day with subsequent return to normal. Terramycin apparently played an important part in the recovery. The bone marrow and peripheral blood returned to normal after 20 days.

While "pronesty!" is a very useful drug for the control of cardiac arrhythmias, if it is used in prolonged maintenance dosage the possibility of agranulocytosis must be borne in mind, and the patient's white blood cell count should be ascertained at regular intervals.

Total White Blood Cell and Differential Counts in Case of Agranulocytosis with Recovery

Hospital Day	Total WBC	Lymphocytes, %	Granulocytes, %	Segmented Cells, %	Stab Cells, %	Myelocytes, %	Myeloblasts, %
1	2,000	100	0	0	0	0	0
2	1,500	100	0	0	0	0	0
3	.....	...	..	..	..	..	..
4	1,500	99	1	1	0	0	0
5	1,150	100	0	0	0	0	0
6	1,600	100	0	0	0	0	0
7	1,700	100	0	0	0	0	0
8	4,000	77	23	6	1	16	0
9	7,300	20	80	9	10	61	3
10	12,000	15	85	16	2	64	3
11	14,700	16	84	32	3	44	5
12	18,600	16	84	38	6	38	2
13	20,400	13	87	36	7	43	1
14	13,300	12	88	44	4	39	1
15	11,700	24	76	52	6	28	1
16	9,000	26	74	58	7	9	3
17	7,100	24	76	67	2	6	1
18	6,800	48	52	50	2	0	0
19	10,100	49	59	47	5	1	6
20	6,300	46	54	52	2	0	0
21	8,200	48	52	50	2	0	0
22	7,100	38	62	61	1	0	0
23	10,300	37	63	61	2	0	0

330 Mt. Auburn St. (Dr. Townsend).

TREATMENT OF BENIGN PAROXYSMAL PERITONITIS WITH PARA-AMINOBENZOIC ACID

Willard H. Willis, M.D., Utica, N. Y.

Recently, benign paroxysmal peritonitis has been recognized as a clinical entity.[1] Although only a few cases have been reported, it has commanded considerable interest in recent years, especially in relation to a larger group of periodic diseases of unknown cause.[2]

The diagnosis is based on the clinical characteristics of the syndrome and the ruling-out of other types of peritonitis. These clinical findings include periodic bouts of abdominal pain accompanied with fever, a varying degree of leukocytosis, and the physical findings of peritonitis. The duration of the paroxysms may last a few days to two or more weeks. At times the abdominal pain is very severe and the abdominal tenderness marked. Involuntary spasm of the abdominal muscles, constipation, and vomiting are frequently present. At times the region in which pain is found includes the lower portions of the chest, and the pain is aggravated by breathing. The episodes usually begin early in life and tend to recur over a period of many years. It is interesting to note that almost invariably the patients suffering from the syndrome are of Jewish, Syrian, or Armenian extraction.

The treatment heretofore has not influenced the course of the disease. Antibiotics and antihistaminics are not helpful. The purpose of this brief communication is to call attention to a case treated successfully, it is believed, with para-aminobenzoic acid.

As has been stated, efforts to determine the etiology of this disease have been futile. The reason for using para-aminobenzoic acid in this case was based on the theory that the disease may be one of the so-called collagen diseases involving the peritoneum specifically. Para-aminobenzoic acid has been shown to favorably influence other collagen diseases.[3]

REPORT OF A CASE

The patient, a Syrian girl aged 16, was first seen early in September, 1949. At this time she was experiencing severe abdominal pain of four days' duration. She had suffered from such pain periodically for four years. The interval between attacks had varied from two weeks to three months, and this interval seemed to be growing shorter. During the first year, the attacks usually lasted from three to five days, but in the past three years they lasted from one to three weeks. The preceding episode had subsided only two weeks previously. In general, the attacks had become severer.

The pain usually had its onset as a discomfort in the right side of the abdomen or a generalized abdominal pain. If it did start in the right side of the abdomen, it would finally spread to involve the whole abdomen within two days. After several days, the pain became intense. Nausea, vomiting, and constipation were common. Almost without exception, during a severe episode, the pain included the lower part of the chest and was made worse by breathing. Fever was invariably present, usually not exceeding 103 F. The patient had been hospitalized on many occasions, and a review of the hospital records revealed moderate leukocytosis during attacks. Various antibiotics had been used without definite benefit. The discomfort subsided gradually, as did the fever. She felt perfectly well during the intervals.

As the years progressed, she came to fear the recurrent attacks of pain, as she knew she would receive little benefit from treatment.

The patient had an appendectomy at the age of 9 yr., and an exploratory operation in 1947 during an interval between attacks. The only finding then was a small ovarian cyst. She was found to have mild hydronephrosis on the right side during one of her hospital admissions, but it was thought that this was not capable of producing her symptoms.

On physical examination the patient was obviously in severe pain. She preferred to lie on her back with her thighs flexed. Motion of any sort aggravated her abdominal pain. She experienced some discomfort in her right shoulder with deep inspiration. The abdomen was moderately distended, and there was moderate, generalized, involuntary spasm. Tenderness and rebound tenderness were marked. Otherwise, the physical examination was not remarkable. This episode persisted for approximately two weeks.

Three weeks later, while symptom-free, the general physical examination was not remarkable. The urinalysis was noncontributory, and the total white blood cell count was 7,900, with a normal differential. The hemoglobin value was 71%. The blood sedimentation rate was 20 (Westergren method). Urine porphyrins were well within normal limits. Barium studies of the stomach, small bowel, and colon were noncontributory.

On Oct. 13, 1949, another attack of abdominal pain started. Within a day, physical findings were essentially those described above. On the second day of the attack, para-aminobenzoic acid therapy was started in the form of equal parts of a 10% solution of sodium and potassium para-aminobenzoate. She was given 3 gm. four times a day. Two days later her pain had entirely subsided, and three days later she was able to return to school. All pain, fever, and abdominal tenderness had disappeared.

It was then elected to continue para-aminobenzoic acid in the hope of preventing further paroxysms. This consisted of 1.5 gm. twice daily. This was continued until March, 1950, when she voluntarily stopped the medication, although she had not experienced further attacks. She was next seen in August, 1950. She stated that since stopping the medication she had had abdominal pain on several occasions, but as soon as pain appeared she would take the drug in the original dosage for 24 hr. and the pain would promptly disappear. She seemed content with this plan. She could not say that any of these attacks were similar to her previous attacks because they had persisted for such a short time.

She was therefore urged to omit all medication for 24 hr. the next time she experienced pain, so as to be certain that the peritonitis would recur. At first she and her family were reluctant that she do this, but readily agreed when persuaded that others might benefit by her experience. Her generalized abdominal pain did recur on Sept. 25, 1950. In 24 hr. the abdominal pain had become generalized and intense. Her temperature had reached 101.2 F. The abdomen was again slightly distended, and there was a moderate degree of involuntary spasm. Rebound tenderness was again present over the whole abdomen. The following day para-aminobenzoic acid was started in accordance with the original dosage. Twenty-four hours later her abdominal pain began to subside, and in 48 hr. she significantly improved. In 72 hr. she felt well and was up and about. The following day she resumed her usual activities.

COMMENT

In view of the above, it was believed that two episodes of acute benign paroxysmal peritonitis had been significantly shortened by the administration of para-aminobenzoic acid. It was also felt that this substance may have exerted a prophylactic influence while being taken regularly, and that some attacks may have been aborted by prompt administration of the drug.

It is realized that the apparent response in one case to this substance is inconclusive evidence of its value in

1. Segal, S.: Benign Paroxysmal Peritonitis: Second Series, Gastroenterology **12**: 234, 1949.
2. Reimann, H. A.: Periodic Diseases, J. A. M. A. **136**: 239 (Jan. 24) 1948.
3. Zarafonetis, C. J. D.: Therapeutic Possibilities of Para-Amino-Benzoic Acid, Ann. Int. Med. **30**: 1188, 1949.

V 14
1951

the disease. However, the response to the drug was so striking that it was felt the case should be reported in the hope that others who have the opportunity to follow such cases will become interested in this concept of the disease and this therapeutic approach.

SUMMARY

A case of benign paroxysmal peritonitis which apparently responded favorably to para-aminobenzoic acid is reported.

258 Genesee St.

AUREOMYCIN THERAPY FOR ESCHERICHIA COLI VAGINITIS

Jerome J. Schwartz, M.D., Lynbrook, N. Y.

Under normal conditions, the vaginal epithelium of a healthy adult is resistant to infection. However, if the vitality of the vaginal mucosa is impaired, then infection may supervene. The factors which may decrease the resistance of the normal vaginal mucosa to infection are manifold, and include trauma (from coitus, pessary, douch nozzle, and tampon), childhood, pregnancy, menopause and any number of acute infectious and chronic diseases.

The etiological agent causing the vaginitis might be any one of the large variety of micro-organisms, animal parasites, or fungi. Although rarely a cause for vaginitis, the Escherichia coli can, under certain adverse conditions, cause this disorder. Incorrect perineal hygiene is the most important contributory factor in the transference of these micro-organisms into the vagina with the production of this disease entity.[1] The purpose of this paper is to present a case of Escherichia coli vaginitis and its dramatic response to aureomycin.

REPORT OF A CASE

F. M., a 32-year-old bipara, was first seen on Aug. 16, 1950, complaining of intense vaginal itching and dysuria. Her present illness began on Aug. 11, at which time the patient had itching of the external portion of her vulva, primarily on the left side. She went to her doctor, who stated that she had Trichomonas vaginitis and prescribed two devegan* tablets (acetylaminohydroxyphenyl arsonic acid, 0.25 gm. per tablet) twice a day. With this therapy, there was no improvement of her symptoms. On a revisit to her doctor he gave her an injection of penicillin, but to no avail.

Past history was noncontributory. Her last menstrual period was on July 13, 1950.

Physical examination of the vulvovaginal area revealed a rather moderate edema of the clitoris, labia minora and labia majora. On the external surface of the left labium majus and the adjacent contact area of the left thigh, on the external surface of the labia minora, and within the introitus there were noted a number of discrete, small, shallow ulcerations. These ulcerations were irregular in shape, moist and of a dirty, grayish color. Because of the edema and severe pain attendant with the examination of just this area, internal vaginal examination was not performed at this time. A tentative diagnosis was made of ulcus vulvae acutum. The patient was advised to take dilute potassium permanganate douches and to apply an anesthetic ointment to the itching areas. At this time she was also given an injection of 300,000 units of penicillin.

When she was seen the next evening, there was no alleviation of symptoms. There was a coalescence of the small ulcers to form large, irregular, shallow ulcers scattered over the vulva and vagina. A thin, grayish, serous pus was noted in the vaginal canal. A smear of the pus was not informative. No organism morphologically resembling Bacillus crassus was noted. A smear of the pus was placed on a blood plate. Aureomycin was prescribed. However, because of nausea and vomiting, the patient did not take the prescribed medication.

The next evening, the dysuria was so excruciating that the patient had to be hospitalized. Under thiopental (pentothal*) sodium anesthesia, a Foley catheter was inserted into the bladder. At this time it was noted that the ulcerations were still present on the vulva and in the vagina. The inner surfaces of vagina and labia minora were agglutinated to one another. The coapted surfaces were separated with ease. On admission, urinalysis showed the presence of acetone (4 +) and absence of sugar and albumin. The patient was immediately given 2,000 cc. of dextrose in saline solution and distilled water by intravenous administration. On Aug. 21, culture of the vaginal pus revealed Escherichia coli as the predominating organism, with the presence of a nonhemolytic Streptococcus also noted. An aureomycin sensitivity test performed on the organisms obtained on the 21st revealed no growth at 2.5 gamma units. Growth was present on lesser concentrations. On the evening of the 21st, the patient began menstruating. Cultures of the vaginal pus on an eosin–methylene blue blood plate revealed an exuberant growth of Esch. coli. Evidently the menstrual blood provided an excellent culture media for the growth of these organisms. At this time a urine culture was negative for these organisms.

On the afternoon of the 22nd, the patient was started on aureomycin hydrochloride, 500 mg. every six hours.

The patient had been on continuous potassium permanganate soaks since her admission on Aug. 19. On the afternoon of the 22nd, it was noted that the skin betewen her thighs and over her buttocks was excoriated and covered with minute pustules containing a grayish-green pus, which on culture revealed the presence of Staphylococcus aureus and a nonhemolytic Streptococcus. The soaks were discontinued. An eosin–methylene blue blood plate of the vaginal pus on the 23rd revealed very few colonies of Esch. coli, and at this time a nonhemolytic Streptococcus was the predominating organism.

There was a dramatic response to aureomycin within 24 hr.

On Aug. 23, the dosage of aureomycin was reduced in half, and, although the patient was still menstruating, aureomycin vaginal suppositories,[2] 250 mg. a suppository, were inserted into the vagina three times a day. On the 24th of August, no growth of Esch. coli was noted on a blood plate smear. There was a sparse growth of a nonhemolytic Streptococcus and Staphylococcus aureus on the eosin–methylene blue plate. Examination of the vulva and vagina at this time revealed a pink, healthy-looking vaginal mucosa with no evidence of ulceration present.

On Aug. 25, there was no growth of Esch. coli noted on the blood plate. At this time, the aureomycin was discontinued and the catheter was removed. The patient was able to void spontaneously without any pain. The excoriated skin was treated with zinc oxide paste, which resulted in drying up and exfoliation of the affected skin.

The patient was discharged on Aug. 29 without any complaints. On Sept. 5 the patient was again seen. At this time she had no complaints, and examination revealed complete healing of vulva, vagina and the excoriated areas of skin.

SUMMARY

A case of Escherichia coli vaginitis is presented. The therapeutic response of Esch. coli vaginitis to aureomycin was a most dramatic one in this case. In the prevention of Esch. coli vaginitis, great importance should be attached to correct perineal hygiene.

134 Hempstead Ave.

Major Andrew Fodor and Sgt. R. A. Dyer of the First Army Area Medical Laboratory aided with the bacteriology of this case.

1. Davis, C. H.: Gynecology and Oostetrics, Hagerstown, Md., W. F. Prior Company, Inc., 1935, vol. 2, chap. 10.

2. The aureomycin vaginal suppositories were supplied by the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

ACUTE CHYLOUS PERITONITIS

Leon M. Karp, M.D.
and
Franklin I. Harris, M.D., San Francisco

The occurrence of chylous ascites with or without concurrent chylothorax has been reported by several authors,[1] but the paucity of reports of acute peritonitis occurring in association with idiopathic chylous ascites prompts us to report the following unusual case of such a combination.

REPORT OF A CASE

R. P., a 46 year old married woman, entered Mount Zion Hospital June 26, 1950, with a history of two days of illness. About 48 hours previously she had noticed tenderness, stiffness, and swelling on the left side of her neck. This caused her moderately severe discomfort through the night, but the next morning the tenderness and the swelling had subsided and were replaced by the onset of diffuse abdominal pain, which was crampy in nature. The abdominal symptoms progressed, and by evening abdominal tenderness was so pronounced that the patient was hospitalized in a suburban hospital for observation. One day later her pain was much severer and now could be localized to the right side of the abdomen. The patient stated that she felt more comfortable if she lay on her right side. During this 48 hour period, she had moderate fever and complained of nausea, although there was no vomiting.

A tentative diagnosis of acute cholecystitis was made, and the patient was transferred to Mount Zion Hospital. On admission, June 26, her temperature was 37.2 C, pulse 88, and blood pressure 140/80. Her general condition appeared good, but she was almost hysterical with abdominal pain and discomfort. (An appendectomy had been done 19 years previously.) Physical examination revealed no stiffness, tenderness, or swelling of the neck at this time. The abdomen was slightly distended and generally tender, but palpation could be accomplished deeply on the left side without severe pain. On the right side, palpation elicited distinct rigidity and severe pain, especially in the right upper quadrant. The abdomen was silent to auscultation. The scar of an appendectomy done 19 years ago was noted. Urinalysis was essentially normal. White blood count was 20,800 with 87% polymorphonuclear cells, and 10% were nonfilamented. The patient's leukocyte count had been reported as 17,000 on the previous day in the suburban hospital. Roentgenographic examination of the chest and scout films of the abdomen revealed nothing of pathological significance.

A diagnosis of acute cholecystitis or possibly perforated ulcer was made, and the patient was prepared for laparotomy. When the peritoneal cavity was opened, a large amount of milky fluid was encountered throughout the general peritoneal cavity, and local collections were noted beneath the liver, around the region of the spleen, and deep in the pelvis. The gallbladder appeared to be normal, and no evidence of pathology in the stomach or the lesser sac was demonstrated. However, a peculiar appearance of the colon was observed in the region of the hepatic flexure, upper portion of the ascending colon, and the right half of the transverse colon. The serosa of this region of the bowel was milky white in color. The bowel appeared as if milk had been injected with a fine hypodermic syringe beneath the serosa. On the lateral edges of the bowel wall, the milky fluid appeared to run out into finger-like fine vessels, but these could not be traced into the mesentery. There were several acutely inflamed lymph glands in the mesentery of the small bowel, and although the mesentery was moderately inflamed and edematous, it was not thickened or fibrosed. Penrose drains and a Chaffin tube drain were placed in the right subhepatic space where the largest collection of milky fluid was found. Microscopic examination of the ascitic fluid revealed debris and many fat globules. Cultures of the peritoneal fluid were sterile.

Postoperative course was uneventful, and the patient made a rapid and excellent complete recovery, leaving the hospital on the twelfth postoperative day. This patient has been kept on a low fat diet since her operation. With this exception she is free of restrictions and is now perfectly well and completely recovered ten months after operation.

From the department of surgery, Mount Zion Hospital. Resident in Surgery (Dr. Karp) and Chief of Surgery (Dr. Harris).

1. Button, E.: Australian & New Zealand J. Surg. **15**: 306, 1946. Little, J. M.; Harrison, C., and Blalock, A.: Surgery **11**: 392, 1942. Brown, A. L.: Traumatic Rupture of Thoracic Duct with Bilateral Chylothorax and Chylous Ascites: A New Operation; Report of a Case. Arch. Surg. **34**: 120 (Jan.) 1937.
2. Davis, N. P.: Pennsylvania M. J. **43**: 142, 1939.

COMMENT

The onset of the patient's illness with pain and swelling on the left side of the neck might have led one to suspect involvement of the thoracic duct. However, the absence of neck findings at the time of admission led us to discount this phase of the patient's history, and the acuteness of the abdominal symptoms and signs led us to a preoperative diagnosis of acute cholecystitis.

We believe our patient represents a case of acute idiopathic chylous peritonitis. This condition has been reported previously by Davis,[2] who reported three cases with similar acute onset, findings, and uneventful postoperative course with complete recovery after peritoneal drainage. His cases differed essentially only in that the chylous subserosal injection involved segments of small bowel rather than colon, as in our case.

The etiology is unknown, but one must assume a rupture of some part of the abdominal chyle system. The leakage into the free peritoneal cavity produces the peritonitis, and there is a temporary block of the normal flow of chyle from the intestinal lacteals. This explains the milky white appearance of the intestinal serosa described in our case and in those reported by Davis. In this group of cases, healing of the ruptured abdominal cisterna or its involved branches is usually rapid and spontaneous with the establishment of a collateral chyle circulation.

Reports of the occurrence of chylous ascites may be classified clinically into three groups:

(1) Acute Chylous Peritonitis. These rare cases, like our own, present a picture of acute peritonitis with rapid onset. Simple drainage apparently gives prompt and complete recovery.

(2) Chylous Ascites. True chylous ascites with pronounced abdominal distension resembling the ascites of cirrhosis may occur from traumatic rupture of the cisterna chyli or its tributaries, rupture of mesenteric chylous cysts, or rupture of the thoracic duct, as seen in the hyperextension injuries to the back. It may also occur from parasitic obstruction of the thoracic duct, as in filariasis, or obstruction of the great veins of the neck. These cases do poorly and tend to become chronic with prompt recurrence of the chylous ascites after tapping or drainage.

(3) Progressive Chylous Ascites Associated with Palpable Abdominal Tumors. In this general classification are those cases in which the cisterna chyli and its tributaries become obstructed by neoplasms, tuberculous adenitis, or mesenteric cysts. In this group are included those cases of palpable abdominal tumor resulting

V 147
1951

from the mesenteric thickening seen in the lipodystrophy of Whipple's disease.[3] These cases do poorly and are universally reported as ending fatally. It has been suggested that there is an interrelation between recurrent attacks of mesenteric lymphadenitis and the progressive end result of Whipple's lipodystrophy of the mesentery. The literature on these conditions is sparse and confusing. It appears important, however, to distinguish group 1, with its good prognosis, from groups 2 and 3, which carry graver and even fatal outlooks.

SUMMARY

A case of acute idiopathic chylous peritonitis is reported. The relation of this rare condition to chylous ascites is briefly discussed.

450 Sutter St. (Dr. Harris).

3. Rosen, M. S., and Rosen, S. H.: Am. J. Path. **23**: 443, 1947. Whipple, G. H.: Bull. Johns Hopkins Hosp. **18**: 379, 1907. Pearse, H. E.: Surgery **11**: 906, 1942. Fitzgerald, P. J., and Kinney, T. D.: Am. J. Path. **21**: 1069, 1945. Pemberton, J.; Comfort, M. W.; Fair, E., and Zaslow, J.: Surg., Gynec. & Obst. **85**: 85, 1947.

PENCIL-POINT NEEDLE IN PREVENTION OF POSTSPINAL HEADACHE

James R. Hart, M.D.
and
R. J. Whitacre, M.D., Cleveland

Headache following spinal anesthesia is a perplexing problem to the anesthesiologist. Sometimes it presents itself even in patients in whom no spinal anesthetic has been employed. Recently a patient who had received only a local anesthetic for the removal of a superficial tumor was glibly informed by a forgetful physician that his headache was the result of the spinal tap. It is so easy and convenient to use spinal anesthesia as the scapegoat for all postoperative headaches, that we find the nursing staff, the floor attendants, and even the patient in the next bed making authoritative diagnoses.

ETIOLOGY

Headache of this type has been of clinical interest since the technique of lumbar puncture was introduced. A survey of the literature over a period of 30 years discloses that the theories of its causation are practically legion and frequently contradictory. Such a multiplicity of theories points up the lack of knowledge concerning the true genesis of these headaches.

There is little to be gained by an enumeration of all theories of causation brought forward. The majority opinion is that headache follows leakage of cerebrospinal fluid through the puncture hole in the dura. The mechanism is believed to be tension on vessels and cranial nerves, brought about by the withdrawal of fluid support of the brain when the cerebrospinal fluid is lost through the puncture hole in the dura.

The histological structure of the spinal dura predisposes it to prolonged leakage of fluid. Most of the bundles of fibers are arranged longitudinally, there being comparatively few circular fibers which might be expected to draw together the longitudinal bundles. As a consequence, the aperture made by the penetrating needle gapes for a variable length of time. It has often been suggested that a smaller needle employed in the puncture would tend to reduce the incidence of headache by reducing the size of the residual hold in the dura, thereby reducing fluid leakage. Small needles, such as 25 or 26 gauge, are more effective in this respect than larger needles, but their use introduces other problems. Technically, these very small needles are more difficult to work with.

The opening in the dura through which the cerebrospinal fluid leaks postoperatively may not be solely dependent on the size of the needle employed. The manner in which the needle is inserted can be a factor, too. It has long been advocated that the needle be inserted with the bevel facing one side of the patient so that the longitudinal fibers of the dura would be separated and a minimal number cut. This should decrease the size of the postoperative rent in the dura. The short-bevel needle which is in common use has certain advantages, but the familiar click or snap that is often felt as it passes through the dura probably indicates a tearing action.

PENCIL-POINT NEEDLE

It has been suggested that a needle point which would separate or penetrate in the way a cambric needle penetrates fabric would be less traumatizing than a needle which cuts or tears the fibers of the dura. It is also assumed that such a needle would lessen postoperative leakage of spinal fluid because of the manner in which it passed between or through the fibers. An attempt to make such a needle may be credited to Greene,[1] who in 1923 advocated the use of a needle with a rounded point. He used an ordinary spinal needle and sharpened it to a rounded tip, removing the cutting edges of the bevel. The needles were resharpened after each puncture to remove burs and cutting edges around the lumen. Others have made similar suggestions.

Pursuing the line of reasoning of these investigators, we asked the Becton, Dickinson Company to make a 20 gauge needle with a solid end that is drawn to a point similar in shape to a finely sharpened pencil. Hence we commonly refer to it as a pencil-point needle. The opening is on the side of the needle, just proximal to the solid tip. Presumably this type of needle separates the longitudinal fibers of the dura and arachnoid without seriously traumatizing them. When the needle is withdrawn, the fibers quickly return to a state of close apposition, thereby permitting less leakage of fluid. Such deductive reasoning is not supported by any direct evidence. We have noticed, however, that when we insert this needle there is little or no resistance on entering the dura, which probably indicates that there is less tearing of the fibers, and therefore a smaller residual hole in the membrane.

INCIDENCE OF POSTSPINAL HEADACHE

The reported incidence of spinal headache is approximately 10%, but some allowance must be made for variation of diagnostic standards applied to headaches

From the Department of Anesthesiology, Huron Road Hospital.

1. Greene, H. M.: A Technic to Reduce the Incidence of Headache Following Lumbar Puncture in Ambulatory Patients with a Plea for More Frequent Examinations of the Cerebrospinal Fluid, Northwest Med. **22**: 240 (July) 1923; Lumbar Puncture and the Prevention of Postpuncture Headache, J. A. M. A. **86**: 391 (Feb. 6) 1926.

due to spinal tap. At the Huron Road Hospital, using the ordinary 20 gauge short-bevel needle, we encountered the typical spinal type of headache in 103 patients in a series of 2,070 consecutive spinal punctures, or an incidence of 5%. After the pencil-point needle was adopted and used in 3,489 spinal taps, in 69 patients headache developed, an incidence of 2.0%. We have been impressed by the more than 100% reduction in the incidence of postspinal headache since this needle came into use. These results are very encouraging and lend support to the opinion of earlier workers that such an approach may point the way toward a means whereby the percentage of postspinal headaches can be reduced. Much more experience will be necessary to confirm these findings, and histological studies would do much to clarify the issue and add facts.

The headaches which occur following use of the pencil-point needle have for the most part been shorter in duration and of less severity than those seen after use of the customary needle. It is not unusual for a patient whose headache had been called "spinal" on one day to be relatively comfortable when seen on rounds the second day. Those patients with severe headache which obstinately resists therapy and persists for five days or a week are less common.

PREVENTION AND TREATMENT

The prevention of postspinal headache is based to a large extent on the performance of a spinal puncture which is as atraumatic as possible, the essentials of which are listed below.

1. The rent in the dura should be as small as possible. The shape and size of the pencil-point needle favor this aim.

2. The subject should remain completely immobile during the performance of the puncture, so that the initially small hole will not be enlarged.

3. There should be only one hole in the dura.

Babcock's admonition that "No solution or technical innovation has displaced the necessity for accurate technic" may well be kept in mind when carrying out a spinal puncture.

Treatment of postspinal headache continues to be symptomatic and on the whole unsatisfactory. Time still is the surest cure. Rest in bed, support under the neck, application of heat, and administration of mild analgesics often suffice. Almost any drug that stimulates the circulation or produces a peripheral vascular reaction will provide relief in some cases. As yet, no universally successful drug has been found. Sometimes patients are strikingly benefited by correcting the fluid balance. Epidural or subarachnoid injection of fluid to restore spinal fluid pressure has been used with some success.

In addition to definitive treatment, the psychogenic factor should be given attention. When such a factor is unmistakably present, psychotherapy may prove of benefit. It has been helpful to prevail on doctors, nurses, and all others who come in contact with the patient not to draw attention to the possibility that the patient's headache is a complication of spinal anesthesia. The patient who remains unaware of the existence of this complication is much less likely to become one of its victims.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT OF THE COUNCIL

The Council has authorized publication of the following report. R. T. STORMONT, M.D., *Secretary.*

THE STATUS OF BLOOD "SUBSTITUTES"

Restoration of circulatory blood volume in shock is well established as a life saving procedure of primary therapeutic importance. Human whole blood, plasma, or serum are preferred for this purpose because they provide a more complete and lasting form of replacement than can be obtained with solutions of artificial colloids or with ordinary isotonic fluids otherwise useful to combat loss of water and essential ions in other conditions. Whole blood always is preferred over plasma or serum when shock is complicated by hemorrhage or severe traumatic injury which results in a loss of functioning blood cells. Whenever bleeding complicates shock, and compatible whole blood is not immediately available, human plasma is the logical "substitute" because it provides more of the components of blood essential to promote clotting than does serum. Whole blood, plasma, and to a lesser extent, serum, also furnish blood proteins and immune bodies which are not provided by artificial fluids. When "substitutes" for whole blood are employed in hemorrhage or traumatic shock, administration should be limited to an amount sufficient to elevate the systolic blood pressure not more than 80 to 85 mm. Hg. Excessive amounts may produce further bleeding and thus dilute the blood to a dangerous degree. If shock occurs without significant destruction or loss of functioning blood cells, restoration of fluid by plasma or serum to overcome hemoconcentration is theoretically preferable to the use of whole blood. However, in traumatic shock secondary to severe burns or crushing injuries there is a loss of blood cells as well as plasma in the zone of injury, despite the apparent hemoconcentration indicated by elevated peripheral venous hematocrit values. Hence, whole blood is preferred to plasma or serum to combat peripheral circulatory failure, and to prevent the occurrence of secondary anemia which usually follows severe burns and crushing injuries. It has been shown that values for the peripheral venous hematocrit may be as much as 25% higher than the true hematocrit for the entire blood of the body. Thus, in these instances, the peripheral hematocrit is not a reliable guide to the presence or degree of hemoconcentration. Therefore, it is likely that whole blood (possibly with buffered sodium solution to furnish electrolytes) is the replacement fluid of choice for all forms of traumatic as well as hemorrhagic shock.

Frequently, in meeting such an emergency as shock, there is insufficient time or facilities to obtain compatible whole blood or one of its derivatives. Under such circumstances, ordinary isotonic fluids or artificial colloids which possess the osmotic effect of plasma or serum and thus retard the further loss of intravascular fluid to the tissues must be used temporarily. Such "substitutes" should not be regarded as replacements but rather as temporary supportives of blood volume and arterial pressure.

The essentiality of human whole blood and its derivatives has been further emphasized by the threat of atomic warfare and the prospect of extensive casualties. This has stimulated increased efforts to develop measures which will decrease the incidence of incompatibility reactions to whole blood and the hazard of homologous serum jaundice inherent in the handling and use of pooled irradiated plasma or serum. It has intensified the development of methods for prolonging the storage-life of whole blood to minimize waste of the formed elements. Measures for expanding the collection program to insure a continuous supply of donors are being considered. The development of simple and precise methods for estimating blood volume in shock may permit more frugal use of blood. Finally, renewed interest has been focused upon the further development of artificial sub-

V 147
1951

stances or "substitutes" which can safely support blood volume in emergencies and so extend the supply of whole blood and its derivatives for the management of injuries involving actual blood loss or destruction. Various artificial colloid preparations which have been proposed for the management of shock or edema are under investigation to determine which of these is best suited for stock-piling and use in any emergency which might deplete or exhaust the supply of blood and its derivatives.

The idea of preparing and utilizing solutions of compounds or material having the colloidal and osmotic characteristics of plasma is not new. Despite previous efforts to develop a completely satisfactory "substitute," none has been found which is entirely free from disadvantages. The difficulties involve the selection of a foreign material that will provide the desirable characteristics of human plasma and be completely metabolized without producing toxic or allergic reactions in the recipient. From the standpoint of practical use, a "substitute" should also have sufficient stability to permit storage, distribution, and administration under various environmental and emergency circumstances. The availability and cost of manufacture are factors which also require consideration.

Artificial colloids have not entirely superseded the intravenous use of isotonic solutions of crystalloids in shock. Although solutions of physiologic salts and/or dextrose are too rapidly lost from the circulation to provide more than evanescent support of blood pressure and volume, they may be of value in emergencies when neither human blood derivatives nor artificial colloids are immediately available. Isotonic sodium chloride solution also is frequently useful to initiate venoclysis as a preliminary to blood transfusion or in conjunction with the intravenous infusion of artificial colloids. Used alone, solutions of crystalloids may increase the accumulation of tissue fluid from the injured vascular system. Proteins with a molecular weight as great or greater than that of serum albumin (70,000) are not excreted by the kidney. Not all of the "substitute" colloids approach this size. The synthetic polymers are controlled within a range to approximate molecular aggregates of similar average size. Even animal serum and human ascitic fluid, which have been proposed as "substitutes," do not provide the exact osmotic equivalent of human blood proteins.

A 6 to 7% solution of acacia (gum arabic) has been reported to have suitable colloidal characteristics for intravenous injection to support blood volume in shock and to relieve edema in nephrosis. Its use is accompanied by certain disadvantages, the importance of which remains somewhat controversial. Its injection in normal dogs results in a diminution of the plasma protein which is greater than can be accounted for by the diluting effect. Most of the acacia escapes from the blood within a week to ten days, but little is excreted by the kidneys. The greater portion apparently is stored in the liver and other organs. There is evidence that it may interfere with hepatic function and delay the regeneration of serum protein. Acacia and other gums such as algin (sodium alginate) have the potentiality of producing allergic reactions in sensitive individuals. Algin and laminarin, which are carbohydrates derived from seaweed, also have been proposed as artificial colloids.

Human ascitic fluid has been employed for the management of edema, but its protein content usually is too low to provide an adequate osmotic effect. The supply or keeping quality is considered too limited for consideration of such material as a practicable substitute for the treatment of shock.

Animal plasma proteins such as bovine serum albumin have been proposed as substitutes for human plasma. Despeciated bovine serum, from which most of the globulin fraction is precipitated and the agglutinins and hemolysins destroyed by controlled heating, has been administered intravenously to human beings without the development of adverse reactions. The despeciated serum has a protein content (chiefly albumin) of approximately 5 gm. per 100 cc. It is stable at room temperatures for storage periods up to six months. Its osmotic pressure rarely exceeds that of filtered human plasma. The animal protein is apparently utilized in the body, thus providing an advantage over synthetic or artificial colloids in cases of hypoproteinemia. However, an important disadvantage to the use of bovine albumin as a substitute is the possibility of transmission of tuberculosis or undulant fever from infected cattle. It is also expensive and difficult to process animal serum sufficiently to insure freedom from protein and antibody reactions.

Gelatin derived from beef bone, fish, and pig skin has been extensively investigated for use as an infusion colloid. Gelatin provides a suitable osmotic effect, but is fairly rapidly excreted by the kidney. A single infusion usually provides osmotic effects for 24 to 48 hours. It is not usually retained in the tissues and is nonantigenic. Gelatin tends to depress the serum albumin level and produces pseudoagglutination of the red cells so that it may interfere with blood typing or cross matching unless these are performed prior to its administration. It is also useful to preserve white blood cells separated from whole blood. There is evidence to indicate that gelatin should be used with caution when there is renal impairment, and until there is further information available, it is not recommended for use in the crush syndrome or in extensive third degree burns, because these are associated with possible renal damage.

The Council has accepted a special gelatin prepared from refined beef bone collagen (P-20) which was developed in the United States during World War II. It is marketed under the designation, Special Gelatine Solution, Intravenous 6% (Knox Gelatin Protein Products, Inc.). This product has not been extensively investigated in the treatment of chronic hypoproteinemia, although it is capable of producing a positive nitrogen balance. Its chief disadvantage is that it is a gel at room temperatures and must be warmed prior to its administration. Gelatin has been approved for stock-piling by the National Research Council. Animal skin gelatins and oxypolygelatin, a modified form of collagenous gelatin, which have a lower gel temperature, are under further investigation.

Dextran is a biosynthetic polysaccharide obtained from the fermentation of sucrose by the bacterium, *Leuconostoc mesenteroides* and its congeners. It was developed in Sweden after the last War and has been used extensively in Europe for the treatment of shock. Dextran is a glucose polymer similar to glycogen except that its chemical structure has less chain branching and it is more resistant to hydrolysis by blood enzymes. The crude fermentation product is cracked by acids to give a material with a molecular weight ranging from 50,000 to 105,000. Dextran may vary widely in the size of its molecules. Excessively branched chains are considered to be undesirable in the finished product, but the physiologic significance of this is not fully understood. Some observers believe the molecular weight should be controlled between narrower limits (80,000 to 100,000) to decrease the kidney excretion of the smaller particles. Both the degree of branching and molecular size can be controlled by different processing conditions and to some extent by the choice of the culture strain used in the fermentation.

Dextran is administered as a 6% solution in isotonic sodium chloride. Most of it disappears from the blood stream in 12 to 14 hours. About one-tenth to one-half is excreted in the urine, but the fate of the remainder is still incompletely determined. Studies in rabbits which received large doses reveal only traces in the lymph nodes and the bone marrow after nine months. Dextran is also reported to be partly excreted by the gastrointestinal tract. Tracer studies are in progress to investigate this matter more completely. Toxic effects have not been observed, but allergic reactions have occurred. The problem of eliminating contamination by bacteria used in fermentation and sterile packaging is being solved. Dextran has been used in nephrosis as well as shock, but its usefulness in the former condition has not been established. The National Research Council has set up specifications for limited stock-piling of dextran. It is also considered useful for the separation of red blood cells from white blood cells and may offer the means for longer preservation and salvage of the formed elements from whole blood used in the preparation of plasma.

A mucilagenous polysaccharide extracted from okra has been employed experimentally in dogs as an antishock colloid. It is reported to be completely metabolized in the body and not stored in the liver. Its clinical usefulness has not been evaluated.

Pectin of medicinal grade (N. F.) is also used in the preparation of a colloidal solution for the management of shock. Pectin is almost completely esterified polygalacturonic acid found widely as a colloid in plants. Its molecular weight ranges from 100,000 to 250,000 which can be reduced to the desired dimen-

sions by proper autoclaving treatment. It has been employed in autoclaved solutions of 0.5% to 2%, with some preference for 1.0% or 1.5% in isotonic sodium chloride buffered to about pH. 7 immediately prior to use. Pectin solutions are unstable in an alkaline medium. When large amounts are administered to animals less than one-half is excreted by the kidney, the remainder being deposited in the body, especially the spleen. Material giving a staining reaction for pectic substances has been found in animal tissues up to periods of three months following administration of pectin. Its ultimate metabolic fate is uncertain and this constitutes the chief problem in its use as a substitute. Pectin increases the sedimentation rate of erythrocytes for a period of at least 24 hours and also shortens the coagulation time by reducing the blood platelets. Purpuric rash has been reported as a rare occurrence following administration of pectin.

Polyvinylpyrrolidone (Kollidon) is a synthetic polymer derived from acetylene which was introduced as an intravenous solution in Germany during World War II under the trade name, Periston (Bayer) and was employed extensively in that country as a substitute for the management of shock. American manufacturers are developing methods for producing a pyrogen-free product. The finished product is nonantigenic and can be prepared to provide an average molecular weight of about 80,000, although this may vary between 10,000 and 90,000 and much of the material (as made in Germany) has an average molecular weight of 40,000 to 50,000. Its physical characteristics are quite similar to those of the plasma proteins. Although promising, polyvinylpyrrolidone needs more study to determine its comparative value as a substitute intravascular fluid for the treatment of shock. Animal studies in cats indicate that large amounts used to replace as much as 70% of the total blood volume, produced no untoward effects. In dogs, the only undesirable effects noted are gas formation and bloody diarrhea, which is attributed to a species sensitivity. The original Bayer preparation contained 2.5% of polyvinylpyrrolidone with physiologic salts, but this was later replaced by a 3.5% solution in saline which was found to be more effective in maintaining blood pressure. A 3% solution has about the same colloidal osmotic pressure as plasma.

Polyvinylpyrrolidone, like pectin, increases the sedimentation rate of erythrocytes. Its ultimate fate in the body is unknown. From 20 to 50% of the polymer fraction is reported to be excreted by the kidney within the first three days following administration, and it has been detected in the urine up to 10 days after injection. The non-excreted portion is taken up largely by the reticuloendothelial system, but the significance and duration of its deposition in the tissues has not been thoroughly investigated. New tracer technics may reveal more information concerning the metabolic fate of polyvinylpyrrolidone. Polyvinyl alcohol, which has similar properties, is not tolerated as well.

Methylcellulose has been proposed for intravenous use, but has been discarded along with acacia, because it is also deposited in the liver. Isinglass has also been employed experimentally in dogs as a possible substitute for plasma. It is derived from the swim-bladders of certain fish. Other macromolecular substances such as glutamic acid polypeptide and sodium glycerol polysuccinate are under consideration. Proteins, such as casein, which can be hydrolyzed for intravenous feeding are not designed or recommended for the treatment of shock.

SUMMARY

The available preparations of artificial colloids cannot be regarded as suitable or desirable for use in the treatment of shock except in emergencies. The absence of utilizable protein from the synthetic products makes them wholly ineffective for replacement of lost blood protein. Animal blood derivatives cannot supply the cellular elements lost by hemorrhage or blood destruction. Efforts to conserve the supply of human whole blood and its components are therefore essential. Since the supply of human blood and its derivatives is limited, further investigation of blood "substitutes" which will sustain blood pressure and volume in emergencies is warranted. Comparative studies of artificial agents to determine those best suited for this purpose should be encouraged. Until more is known of the effectiveness and ultimate metabolism of the synthetic materials, their clinical application should be restricted to investigational use except for purposes of stock-piling for emergency.

COUNCIL ON INDUSTRIAL HEALTH

MANPOWER CONSERVATION

This report has been prepared by a Subcommittee on Manpower Conservation of the Committee on Industrial Health Defense of the Council on Industrial Health, American Medical Association.[1] Activities of this Committee have been coordinated with the work of the Committee on National Emergency Medical Service, American Medical Association. Publication has been ordered following consultation with that Council.

CARL M. PETERSON, M.D., *Secretary.*

The success of the national defense program depends on effective industrial production. General manpower shortages of the type prevailing in the latter phases of World War II are not anticipated under the current defense program. There will be a progressively tighter labor market, with manpower shortages in some areas and in certain critical skills. However, defense production goals demand timely and effective utilization of available manpower reserves and maintenance of an efficient work force. The circumstances require special consideration for maintaining high standards of health as an essential factor in conserving manpower.

This Committee has been requested to review the health problems of the individual employees who will comprise this work force in defense industries. (The Walsh-Healey Act requires that work on all contracts coming within the purview of this Act must be performed under safe and healthful conditions. The expression "defense industries" includes those industrial establishments that are government owned and operated, government owned and privately operated, or privately owned and operated under government contract.)

This assignment has been approached with three objectives: (1) to inquire into the sources of additional production workers (based on available estimates) and to determine the expected demands that are to be made on the health professions in respect to them; (2) to recommend procedure for recruiting and training additional industrial health personnel needed to maintain such workers at peak production capacity, and (3) to outline the essential industrial health problems involved.

Estimates of manpower requirements, based on the production goals outlined in the first quarterly report of the director of defense mobilization and the military manpower goal currently scheduled by the Department of Defense, indicate a net labor force increase of 3.2 million workers by the fourth quarter of 1952 above the total of 65.2 million in the last quarter of 1950.

The "normal" labor force growth is estimated at 1.8 million between the fourth quarters of 1950 and 1952. During the same two years a further net addition of 1.4 million workers is needed to meet the indicated labor force goal. These are the gains that must be supplied by the increased labor force participation, above the changes indicated by recent trends, from groups such as adult women, youth, the handicapped, and older persons. Women over 35, who are less likely than younger women to have home responsibilities involving the care of young children, constitute our largest labor reserve.

The following table, prepared by the Bureau of Labor Statistics in June, 1951, presents the anticipated distribution of the total labor force goals for the fourth quarters of 1951 and 1952.

1. Membership: M. N. Newquist, M.D., Chairman, The Texas Company, New York; Anna M. Baetjer, Sc.D., Johns Hopkins School of Hygiene and Public Health, Baltimore; Raymond Hussey, M.D., American Medical Association, Chicago; E. A. Irvin, M.D., Cadillac Motor Company, Detroit; W. C. McColly, M.D., Thompson Products Company, Cleveland; Lemuel C. McGee, M.D., Hercules Powder Company, Wilmington, Del.; Beverly L. Vosburgh, M.D., General Electric Company, Schenectady, New York, and J. Huber Wagner, M.D., United States Steel Company, Pittsburgh. Consultants: K. Vernon Banta, United States Department of Labor, Washington, D. C.; H. C. Hesseltine, M.D., Professor of Obstetrics and Gynecology, University of Chicago, School of Medicine, Chicago; A. G. Kammer, M.D., Department of Occupational Health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh; Regine K. Stix, M.D., Bureau of Child Health, New York City Department of Health, New York, and Gertrude F. Zimand, Executive Secretary, National Child Labor Committee, New York.

V 147
1951

Labor Force, Employment, and Unemployment

	1950	Fourth Quarter of 1951 (in millions)	1952
Total labor force	65.2	67.5	68.4
Unemployment	2.1	1.5	1.5
Employment (including armed forces)	63.1	66.0	66.9
Defense	4.8	9.7	12.0
Armed forces	*	3.5	3.5
Civilians	*	6.2	8.5
Nondefense	58.3	56.3	54.9

* Not available for publication.

EMPLOYMENT OF ADOLESCENTS IN INDUSTRY

The number of minors 14 to 18 years of age employed full or part time in nonagricultural pursuits rose from about 418,000 in 1940 to two million in 1945, at the peak of the industrial expansion in World War II. Whereas in 1940 only 67,000 children under 16 years of age were working, mainly part time, the figure had risen to 550,000 in 1945. In April, 1950, there were 1,337,000 children 14 to 17 years old in nonagricultural employment. Some of these children had left school to go to work, while others were working part time in addition to school. There are today two million less young persons 14 to 19 years of age than there were in 1940. The potential of youth population will reach its lowest point in 1952 and will not increase significantly until 1958.

The experience of World War II, when standards for the protection of the health of adolescents were generally not in force, showed that many children, attracted by high wages, dropped out of school prematurely or broke down physically under the combined strain of school and excessive hours of work. There was a concurrent rise in the number of minors injured in industrial accidents. Young persons leaving school to go to work have manifested considerable instability resulting in frequent absences and shifting from job to job.

The paramount problem in manpower conservation for the adolescent group is to train these young people and protect their physical and emotional health during this critical period in their development, so that they come to future manpower reserves with optimum health and training. Positive action now will help to prevent the greatly accelerated movement of youth out of school which occurred during World War II.

The Committee, on recommendation of its consultants, suggests:

1. The use of persons under 18 years of age as a source of additional manpower in the present emergency should not be encouraged.

2. If necessary, they might be used on a vacation or part time basis while attending school with strict regulation of the type of work in which they may engage and the conditions under which they may be employed.

3. Regulations for the protection of the health of young people working part time or during vacations should include:

(*a*) a general 14 year age minimum for employment.
(*b*) a 16 year age minimum for employment in manufacturing industries.
(*c*) an 18 year age minimum for hazardous occupations.
(*d*) a maximum 8-hour day or 40-hour week for minors under 18 years when school is not in session.
(*e*) a maximum work week of 18 hours for children under 16 years attending school and of 24 hours for minors of 16 and 17 attending school.
(*f*) regulation of night work for minors under 18 years.

4. Federal and state laws governing the employment of minors should be strictly enforced.

5. States, whose legal standards are below the standards generally recognized to be necessary for the protection of children, should immediately enact legislation to strengthen their child-labor laws.

6. Industry should voluntarily comply with these standards even if they have not been enacted into law, and should provide adequate medical supervision for all employed adolescents.

7. Industry should provide special counseling for these young people, directed toward better placement, better coordination of school and job training and the minimizing of emotional instability.

EMPLOYMENT OF WOMEN

Number in the Labor Force.—During World War II the number of women in the labor force rose from about 14 million in 1940 to a peak of almost 20 million in 1945. The increased participation of women in the labor force continues a long-time trend, which was accelerated by World War II. The average number of women in the labor force in 1950 was 18.7 million. During the first six months of 1951, the average increase in the number of women in the labor force, compared with the previous year, was about 700,000. Women 45 years of age and over constitute about 30% of those in the labor force today.

Types of Work Women Can Perform.—Experience during World War II demonstrated that properly trained women are capable of performing almost all types of work except those involving excessive muscular work. They are reported to be especially capable at jobs requiring manual dexterity and fine coordination. However, women are on the average only 85% as heavy as men and have only about 60% as much physical strength. Therefore, they cannot lift or hold as heavy weights, they cannot direct as much weight or strength to the pushing or pulling of loads, and their grip is not so strong.

Women are built on a smaller anatomic scale than men, their standing and sitting height, arm length, and size of hands and feet all being smaller. Because of this, machines built to the scale of men often require excessive reaching or stretching on the part of women, and the height of the work bench is often unsuitable. In order to make for maximum production and reduction of fatigue, the machine or the operation should be readjusted to the size and strength of women or else women should be properly selected in relation to the physical requirements of the job.

Women, like men, vary in size and strength, but no significant correlation exists between weight or height and strength. The usual concept of employment personnel, that the heavy women are the strongest, is, therefore, not necessarily correct. The employment of heavy women is of advantage only if they can utilize their weight on their jobs.

The fact that women are less strong than men does not necessarily imply that they will fatigue more easily, since industrial fatigue is not often related to physical strength, except on jobs requiring heavy physical labor. Women may fatigue more rapidly than men, but this is probably due partly to a lack of background training in industrial work and chiefly to the fact that they usually have household duties and responsibilities that require many hours of work in addition to those spent in industry.

There are no data to indicate the incidence of strain and stress injuries among women or to determine whether women are more or less susceptible than men to injuries of the joints, such as tenosynovitis or bursitis, resulting from vibration, friction or trauma.

Sick-Absenteeism in Women Compared with Men (Nonoccupational).—The annual number of cases of sick-absenteeism per 1,000 workers (frequency rate) and the annual number of days lost per worker (disability rate) are much greater for women than for men, but the average number of days lost per absence (severity rate) is greater for men, i. e., women have more frequent illnesses and lose more time each year due to sickness but men have longer illnesses when they are sick. This greater incidence of sick absenteeism among women occurs at all ages and for most of the diseases, both acute and chronic, which are common to both sexes. This excess illness rate is especially marked for those ailments which are classified as "neurasthenia" and the like. The only diseases which occur with considerably greater frequency in men than women are pneumonia, diseases of the stomach, hernia, and the diseases of the heart and arteries.

The reasons for the excess sick-absenteeism among women as compared with men are not clear. It may be due to one or more factors, such as: 1. Women may take their minor illnesses more seriously than men. 2. Women often have many heavy home duties in addition to their gainful work and thus they may

be deprived of adequate rest. 3. Women, especially young girls, may have a less serious attitude toward their work or less economic need, so that they take time off for minor ailments or report unjustified absences as due to sickness more frequently than men. Inequality of promotional opportunities, the temporary nature of employment and lack of training and supervision may also be factors. 4. Difference in sex susceptibility.

Occupational Diseases Among Women Versus Men.—There is no reliable evidence to indicate that women are any more susceptible to the occupational poisons or occupational dermatoses than are men. There is, therefore, no reason why normal women who are not pregnant should be restricted any more than men from working at jobs which involve the use of toxic chemical substances. Under all circumstances the exposures should be kept below harmful levels.

Accidents Among Women Versus Men.—Women have a much lower rate of industrial accidents than men, especially fatal accidents, but a higher rate of nonindustrial accidents (exclusive of automobile accidents). This distribution is undoubtedly due to a difference in exposure. There is not sufficient evidence at present to state whether women are more or less prone to accidents than men, but experiences during the war did not indicate any greater susceptibility of women to accidents. As in the case of men, certain women appear to be more prone to accidents than others and the majority of accidents usually occur among a relatively small group of employees. Employed women should wear clothing that is adequate for safety.

Problems Connected with Obstetrical and Gynecological Conditions.—1. Effect of Work on Pregnancy: In 1948, there were 12 million employed women in the age group 14-44 years, of whom 5,500,000 were married and living with their husbands. Thus, the problem of pregnancy in employed women must be considered. During World War II, it was estimated that three to six new cases of pregnancy occurred per month per thousand women workers, or roughly a 5% annual rate.

There are no sound data available at present to determine the effects of gainful employment per se, on the course of pregnancy, diseases of pregnancy, incidence of spontaneous abortions, premature births or infant death rate. Health authorities, in general, believe that it is safe for pregnant women to continue work, at least during the first six months of pregnancy, and usually longer if their health permits and if the character of their work is suitable.

Recommendations concerning the employment of pregnant women have been published by various governmental and private agencies and include the following points: 1. Pregnant women should not be employed on work that requires heavy lifting, constant standing, constant moving, or good balance. They should not be exposed to harmful levels of toxic chemical substances, such as lead, mercury, or carbon tetrachloride, or to ionizing radiation, since such exposures may exert a harmful effect on the course of pregnancy or on the fetus. They should not work more than 48 hours per week and preferably not more than 40 hours. It is suggested that pregnant women cease work at least six weeks prior to delivery and not return to work until at least six or eight weeks after delivery. Each case should be handled individually on the recommendation of the woman's physician and under the supervision of the medical department of the plant. Pregnant women should be encouraged to report their condition to the medical department with the understanding that their employment will be continued if their health permits. The policy of dismissing pregnant women as soon as their condition is known or refusing to hire married women because of the possibility of pregnancy is a very undesirable policy and, at times, may be even dangerous. Under such circumstances, women who desire to work will claim to be single and will hide their pregnancy until their condition becomes obvious, which is usually not until the last half of pregnancy. Since the period of greatest danger from the viewpoint of spontaneous abortion is during the first trimester of pregnancy, it is obvious that these women will continue to work without medical supervision in the plant during this period and may be exposed to harmful working conditions. On the other hand, when women are encouraged to report their pregnancies and are assured of continued employment, if their health permits, they can be placed on operations free from harmful conditions if their regular work is not suitable.

The fear on the part of industry that accidental trauma suffered in industry might lead to abortions and compensation claims would seem unwarranted in view of the infrequency of abortions due to external trauma and the few claims that have been reported on this basis.

2. Relation of Work to Menstruation and the Problem of Dysmenorrhea: The incidence of dysmenorrhea and the resulting lost time varies greatly in different industries since this condition is affected by psychological factors and is often used as an excuse for other causes of absences. Women engaged in sedentary work have a higher incidence of dysmenorrhea than those engaged in more active occupations. Lost time due to dysmenorrhea can be greatly reduced by certain types of exercises, education, provision of a place for rest, and simple first-aid treatment. Claims have been made that exposure to toxic chemicals, heavy muscular work, vibration, and constant reaching and stretching may cause or aggravate abnormal menstrual and other gynecological conditions, but proof of this is lacking. Experimental investigations are greatly needed in this field. On the basis of the evidence available at present, it would appear that the ability of women to perform mental and muscular work is not altered by the menstrual cycle.

The problems associated with menopausal changes do not appear to be important in most industries at present, although where large numbers of older women are employed, this condition may require consideration. Women with normal menopause or those forced into menopause due to surgical intervention or premature change can serve efficiently and adequately as employees. Many suffer no ill effects. Even those who require treatment or who have symptoms of irritability and instability can be employed if their condition is recognized. It is often desirable for these women to be employed. Women of this age group have some advantages over younger women since they do not lose time due to pregnancies and dysmenorrhea, usually do not have the care of young children and are a more settled group.

Employment of Mothers of Young Children.—The employment of mothers with young children presents some problems. Unless adequate provision for the care of the children can be made, these women should not be employed since the health of the children may suffer. If it is necessary for this group to be employed, the community and the industry should cooperate in developing adequate programs for the care of these children and the hours of work for these women should be reduced.

V 147
1951

EMPLOYMENT OF THE OLDER WORKER

The rate of labor force participation of men and women 65 years of age and over was almost the same in 1950 as in 1940. This long-time downward trend was temporarily reversed by the urgent manpower demands of World War II. Despite the increased industrial activity of the economy in the first half of 1951, compared with a year earlier, no significant change has taken place in the labor force participation of persons 65 years and over. In April, 1951, there were about three million men and almost six million women over 65 years of age in the civilian noninstitutional population who were not in the labor force.

The principal consideration, with respect to the employability of the older worker, is his psychological and physiological fitness as evidenced by capacity and ability to perform required functions, not with reference to chronological age.

In a series of publications of the New York State Joint Legislative Committee on Problems of the Aging, many aspects of the employment problems of the aged are considered, and the consensus is that persons 65 or older do extremely effective and efficient work if work assignments are based on matching job requirements with individual fitness. There is no reason to believe that these workers offer greater liability from the workmen's compensation point of view, and it appears there is less absenteeism among this group.

The problem appears to resolve itself to a consideration of (1) the ability and capacity of an individual with reference to

function (physiological and psychological), (2) the establishment of an effective selective placement procedure, and (3) listing jobs that older persons have succeeded in performing.

Traditional attitudes and practices, as expressed in arbitrary age limits for hiring, create unrealistic and unwarranted obstacles to the more timely use of readily available manpower reserves. Industrial physicians can assist in the building of the needed defense labor force by supporting elimination of (1) arbitrarily fixed upper age limits for hiring of workers and (2) the automatic retirement of employees at a fixed age.

EMPLOYMENT OF HANDICAPPED PERSONS IN INDUSTRY

The employability of the handicapped depends on the emphasis placed on the individual's ability rather than the disability. Selective job placement is the key to the effective use of manpower.

Job placement is founded primarily on two principles: (1) the physical requirements of the job, and (2) the physical capacity of the individual. This latter can be determined only by a good medical examination. The first principle can be determined by a thorough job analysis, or by using the supervisor's knowledge and past experience in evaluating the job at the time of each placement.

The medical examination is the basis of all programs of selective job placement. By means of the medical examination, the accurate evaluation of the individual's physical ability and disability is used to determine his physical capacity to perform work. The examination is made keeping four points in mind: (1) medical history, (2) physical examination, (3) laboratory studies including x-ray, and (4) personality study or evaluation of emotional stability. One should regard this examination as a square, with equal importance placed on each side of the square. Too frequently, triangular examination is made with attention paid only to the first three points. If this examination reveals a physical handicap or defect which is serious enough to limit the individual's working ability or constitute a hazard at work or which can be seriously aggravated by certain types of work, then there must be special placement consideration.

It is difficult to estimate the number of handicapped persons in the United States or in industry, since this would depend on the definition of "handicap." As a matter of fact, few adults are physically perfect. Minor defects present no problem, and suitable placement solves most of the others. For many years industry has been doing a good job of employing handicapped workers by retaining on some suitable job those who have become handicapped during the course of their employment. The same opportunities for doing constructive work exist in connection with prospective employees who may be handicapped, and many organizations have employed such persons effectively. Vocational rehabilitation can add many persons to the nation's manpower.

Many employers fail to employ handicapped persons because they lack an effective placement program. Others are reluctant to employ handicapped persons because of some unfortunate previous experience. They also believe that they are asked to assume an undue liability in the form of potential compensation risks. The compensation laws of most states compel the employer to accept the nonhandicapped and the handicapped with equal liability. Most employers recognize the fact that a certain percentage of handicapped persons may be used without impairing over-all efficiency. However, the percentage of handicapped workers in any one department should not become too high, lest it limit the flexibility and efficiency of the working force, especially in heavy industries or those that require special skill.

In some companies the employer is governed in the employment of handicapped persons by contracts with unions. Some collective bargaining contracts exclude the handicapped by requiring all new employees to start their employment on a heavy laboring job and progressing to more skillful jobs in line with seniority. Obviously labor and management should take a new look at such provisions and modify them so that a handicapped worker will not be barred automatically from earning a livelihood and contributing his share in the nation's production.

The skillful matching of the applicant's physical capacity, aptitude, skills, interest and attitude with the requirements of the job will result in the most effective use of all manpower. A successfully placed handicapped worker ceases to be handicapped from the standpoint of earnings or productivity.

INDUSTRIAL HEALTH SERVICES

The purpose of an industrial health service is to aid in the proper placement of workers and to try to maintain or improve the fitness and ability of employees. Some industrial organizations with well-organized medical departments are holding daily absenteeism due to sickness and injury to approximately 2%. Man-days thus lost unnecessarily represent unproduced guns, tanks, planes, or ships. Five to seven per cent daily absenteeism due to alleged illness among workers in defense plants was not uncommon in World War II.

It is not only women, older workers, and the handicapped who should be considered in providing adequate industrial health services, but all workers. Accidents, tuberculosis, and pneumonia, for instance, are the chief health saboteurs of our younger workers. The planning for adequate health services in the defense plants or essential industries should therefore be a definite part of the over-all blueprint, with emphasis on the preventive phases of industrial medicine.

FUNCTIONS

An adequate industrial health service should include:

1. Preplacement examinations.
2. Periodic health examinations, especially of those exposed to occupational disease hazards and of those who need special follow-up.
3. Treatment of all occupational injuries and diseases.
4. Reasonable care and advice for nonindustrial injuries and illnesses occurring while on the job. For further care, employees should be referred to their own physicians.
5. Adequate records and analysis of the health experience in order to point out future objectives.
6. Collaboration with management in the provision of healthful working environment.
7. Collaboration in an active safety program.
8. Health education for employees.
9. Coordination with community health activities.

Obviously, the routine annual physical examinations of all employees may not be possible due to the scarcity of physicians. Rather, the periodic health audits during the emergency period may have to be on a selective or indicated basis. The physician's time can be further conserved by employing nurses or other aides under his supervision to render much of the routine service for minor injuries and illnesses.

ESTIMATED INDUSTRIAL HEALTH MANPOWER REQUIRED FOR DEFENSE INDUSTRY

Physicians.—There are approximately 2,000 industrial physicians in the United States who devote full time or a major part of their time to industry. Thousands of physicians serve on a part-time or on call basis. It is therefore impossible to state how many physicians are in industry or who serve industry. Actually most physicians serve industry in some manner and at some time.

It should be evident to every one that industrial health services in general are essential but particularly so in defense industries. The Committee feels that the experienced industrial physician or surgeon who knows the health status of his employees, who collaborates in proper job placement, who knows the occupational health hazards that may exist, and who cooperates with management in their elimination or control, who conducts an employee health maintenance program, and who is competent to treat or direct the treatment of the industrially injured is most valuable to the defense effort if kept at his post. The same principle applies to a physician who devotes a substantial portion of his time rendering this same type of service to groups of small essential plants.

Many industrial organizations have excellent medical services, adequately staffed and operated with emphasis on prevention. Too many, however, still have the repair type of service. It is safe to state that industry as a whole has not yet reached a level of

industrial health perfection or even a level of reasonable adequacy. Admittedly, our present industrial health service is thin, but it must serve as our base line in considering future needs.

In attempting to formulate a statement regarding the ratios of physicians and other health workers to numbers of workers, one has to consider the nature of the industry with reference to the processes involved, which determine the environmental hazards, and its geographical location. Also, one has to consider the matter from the point of view of the number of ancillary workers, e. g., nurses, technical assistants, and clerical workers. Perhaps the most useful statement is that, if optimal conditions of industrial health and medical services are to be maintained, the ratio range is one full-time physician or equivalent for 800 to 2,500 workers. The expression "equivalent" is used to emphasize the importance of the part-time services of physicians who take care of smaller plants or who serve in assisting or consulting capacities on the medical staffs of the larger organizations. On this basis, it is estimated a total of 640 to 800 physicians in 1951 with 320 additional physicians in each of the two following years will be required to serve the 3.2 million new defense production workers added between the fourth quarters of 1950 and 1952. The stated numbers of physicians is predicted with the idea in mind that there will be a general scarcity of physicians and, furthermore, that there will be supplemental medical, surgical, and hospital services available in any community.

To provide the additional 960 physicians needed for defense industry, it is our recommendation that physicians filling such posts, outside of those in the organized reserves and in priority groups 1 and 2 under Selective Service, should have reasonable assurance from Selective Service that they will be deferred from military service as long as they continue at their posts in essential defense industry.

Nurses.—On the basis of a ratio of one nurse to 750 employees, approximately 3,184 industrial nurses over and above the 13,113 now in industry will be required to serve the additional four million persons who will be engaged in defense production by the year 1953. Here again, there will be difficulty in filling all of these positions. The existing general nursing shortage calls for the training of larger numbers of nurses. In the meantime, nurses' aides under proper medical supervision may help to tide us over the period of shortage.

Industrial Hygiene Engineers.—An additional 240 industrial hygiene engineers (ratio 1: 10,000 employees) will be needed to augment the 650 presently engaged in this field. Since industrial hygiene engineering is a relatively new field of endeavor, there is no reserve supply of such trained engineers. This particular problem deserves immediate attention.

Suggested Industrial Medical Department Staff.—Presented below is a suggested staff for a defense plant of 10,000 employees where the work and environment would be moderately hazardous:

Physicians (ratio 1: 2,500)	4
Nurses (ratio 1: 750)	13
X-ray and laboratory technicians	2
Industrial hygiene engineer	1
Receptionist, secretarial, clerical workers	6
Janitor	1
Total	27

HEALTH SERVICE FOR SMALL PLANTS

Small plants generally lack adequate health medical service. Since a large number of small plants will convert to defense production, prompt attention is needed.

In some industrial communities, individual physicians have provided service for groups of small plants. Insurance carriers are becoming more active in promoting better medical service in this field. In a few locations the local county medical society has sponsored health service for small plants. Such cooperative efforts might well be studied for purposes of possible adoption of this type of program in other industrial communities. In fact, state and county medical societies in industrialized communities should take appropriate action on this point at once.

TRAINING OF INDUSTRIAL PHYSICIANS

The professional responsibilities of physicians in industrial health activities differ in many respects from the customary practice in hospitals and the general community. This is true not only with respect to an understanding of the diseases peculiar to environmental hazards but also to the understanding of industrial organization and the interpersonal relationship between workers themselves and their supervisors in connection with morale and individual job satisfaction in contributing to the total group effort in maintaining production levels.

Several medical schools now offer an organized course of postgraduate study which is available to physicians who can put aside a period of a year to complete the required work.

In a period of emergency, however, such as is anticipated in connection with the defense effort, if health services in small industries are to be covered adequately, provisions will have to be made for part-time work by physicians in general practice. Since in most instances it will be impossible for these physicians to leave their communities for extensive training at medical centers, provisions should be established locally, preferably through the state and county medical societies, to afford intensive courses for orientation in the content of industrial health programs. Courses covering a period of 9 to 10 weeks could be organized offering two evening sessions of two hours' duration each week. Details of essential subject material in industrial health service are obtainable from the Council on Industrial Health, American Medical Association.

SUMMARY

1. The Committee has had three immediate objectives: (*a*) to inquire into the sources of additional production workers (based on available estimates) and to determine the expected demands that are to be made on the health professions in respect to them; (*b*) to recommend procedure for recruiting and training additional industrial health personnel needed to maintain such workers at peak production capacity; and (*c*) to outline the essential industrial health problems involved.

2. Manpower requirements of the present mobilization program call for a net increase in the labor force, civilian and military, of 3.2 million workers in the two years between the last quarters of 1950 and 1952. It is expected that 2.3 million workers will be added during 1951.

3. Sources of additional manpower must come from women, the handicapped, older workers, and, in special circumstances, adolescents.

4. The principal objectives of industrial health service are the same for all workers—selective placement and health maintenance.

5. The Committee estimates additional health manpower requirements, on full time bases or equivalent, for defense industry to be

	1951	1952	Total
Physicians	640	320	960
Nurses	2,120	1,064	3,184
Industrial hygiene engineers	160	80	240

6. The Committee recommends that industrial physicians devoting full or a substantial part of their time to defense industry should be deferred from military service excepting those in organized reserves or in priority groups 1 and 2 under Selective Service.

7. Training of industrial physicians should include indoctrination courses under sponsorship of state and county medical societies and on-the-job training under experienced industrial physicians. All medical schools should provide undergraduate instruction in industrial medicine. Postgraduate training in industrial medicine of specialty grade should be more generally available in medical, public health, or graduate schools. Industry should collaborate to supply coordinated in-plant training.

8. Small plants, especially those going into defense production, should have access to industrial health services. Steps should be taken to encourage the development of such services by individual physicians or groups, preferably under local medical society sponsorship.

V 147
1951

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

RALPH E. DE FOREST, M.D., *Secretary.*

COLOSTOM-EASE IRRIGATOR & PROTECTOR BELTS ACCEPTED

Manufacturer: Colostom-Ease Corporation, 16 Marquette Dr., Pittsburgh 29. Mailing address: P. O. Box 1183, Pittsburgh 30.

The Colostom-Ease devices are designed to facilitate the care of patients with colostomies. The essential item is the Colostom-Ease Irrigator, which enables the patient to sit on a water-closet and to use running water from a near-by faucet. The Irrigator equipment includes (1) a plastic holder with web belt to fasten it about the waist, (2) a plastic plunger, (3) a plastic disposal tube, and (4) a rubber catheter. The Protector Belt consists of a protector plate and a web belt for holding it about the waist. The protector plate may be either flexible or rigid. In either case, the web belt is detachable from the Protector or the Holder for washing or replacement.

Colostom-Ease Irrigator & Protector Belt

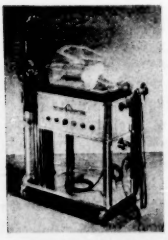
A patient will ordinarily need a single set, consisting of (*a*) an Irrigator including the parts enumerated above, and (*b*) a Protector, usually of the flexible sort, with web belt. Packaged, the set weighs about 570 gm. (20 oz.).

The Council obtained evidence indicating that these devices worked as represented by the manufacturer and were especially helpful to patients with colostomies in taking their daily irrigations. The Council voted to include the Colostom-Ease Irrigator and Protector Belts in its list of accepted devices.

E & J RESUSCINETTE ACCEPTED

Manufacturer: E & J Manufacturing Company, 6116 San Fernando Rd., Glendale 1, Calif.

The E & J Resuscinette is a device for resuscitating newborn infants. The principle of the E & J Resuscitator already accepted is incorporated into a humidified and thermostatically warmed obstetrical bassinet. The electrical system works on 110 volt direct current or 50 or 60 cycle alternating current. The power consumption is 325 watts. In addition, a supply of compressed oxygen is needed. Among the accessories included in the shipping weights are the necessary connections for commercial gas cylinders.



E & J Resuscinette

Unpacked, the apparatus measures 114 (height) by 48 by 116 cm. (45 by 19 by 45½ in.) and weighs 71 kg. (152 lb.). Crated for shipment it measures 123 by 58 by 125 cm. (48½ by 22¾ by 49 in.) and weighs 100 kg. (216 lb.). When the apparatus is to be used for artificial respiration, an infant-size face mask is connected and the mechanism produces pressures alternating rhymically between about —8 and +18 mm. of mercury.

Clinical and laboratory observations acceptable to the Council showed that the device was well made and worked as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the E & J Resuscinette in its list of accepted devices.

THE BIRTCHER "PERSONALLY CERTIFIED" ELECTROSURGICAL UNIT, MODEL 2000, ACCEPTED

Manufacturer: The Birtcher Corporation, 5087 Huntington Drive, Los Angeles 32.

The Birtcher "Personally Certified" Electrosurgical Unit, Model 2000, is a generator of high frequency currents for use in major and minor surgery. It delivers both a damped oscillating spark-gap current and an undamped oscillating tube current. It stands on the floor and is provided with casters. It is 112 cm. (44 in.) high, measures 76 by 48 cm. (30 by 19 in.) in width and depth respectively, and weighs 95 kg. (210 lb.). Packed for shipment it measures 125 by 92 by 63.5 cm. (49 by 36 by 25 in.) and weighs 140 kg. (310 lb.). The foreign shipping weight is 140 kg. For operation, the apparatus requires a 60 cycle alternating current of 90 to 130 volts. The power consumption is 1500 watts (20 amperes). There is a 3-pedal footswitch for controlling and mixing the currents.

The Birtcher "Personally Certified" Electrosurgical Unit, Model 2000

The Council obtained evidence indicating that the apparatus was equal to the demands of minor and major electrosurgery if the footswitch was used with the necessary skill and due regard to hemostasis. The Council on Physical Medicine and Rehabilitation voted to include The Birtcher "Personally Certified" Electrosurgical Unit, Model 2000, in its list of accepted devices.

BURDICK ELECTROCARDIOGRAPH, MODEL EK-2, ACCEPTED

Manufacturer: The Burdick Corporation, 635 Plumb St., Milton, Wis.

The Burdick Electrocardiograph, Model EK-2, is a direct-writing instrument which records by means of an electrically heated stylus tracing on heat-sensitive paper. The instrument is designed primarily for alternating current at 60 cycles and 117 volts, but is stated to be adaptable to the range from 105 to 130 volts. It is small enough to be carried about easily and to be set on a table.

Burdick Electrocardiograph, Model EK-2

The manufacturer submitted evidence from a qualified laboratory showing that the physical characteristics of the device conform to the published "Minimum Requirements for Acceptable Electrocardiographs" of the Council. In a clinic acceptable to the Council, the instrument was inspected by qualified cardiologists and tried on several patients. The report showed that the electrocardiograph performed as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Burdick Electrocardiograph, Model EK-2, in its list of accepted devices.

PRIM COMFORTER ACCEPTED

Manufacturer: Prim Fabrics Company, 905 North Lawrence St., Philadelphia 23.

The Prim Comforter is a bed covering for the use of patients who may be allergic to cotton, wool, or down. It is filled with Fiberglas,* and the cover is satin. It is supplied in two sizes, several quilting designs, and several colors. The smaller size measures 91 by 137 cm. (36 by 54 in.) and weighs about 0.5 kg. (1 lb.). The shipping weight is 1.2 kg. (2¾ lb.). The manufacturer states that it can be either dry-cleaned by standard methods or washed in water at 38 C. (100 F.).

Evidence from a laboratory acceptable to the Council established that the product met the representations advanced by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Prim Comforter in its list of accepted devices.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Edited by . . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

BLOOD PRESSURE DETERMINATIONS BY SPHYGMOMANOMETERS

Authorities recognize that very precise determinations of human arterial pressures are difficult to achieve by use of sphygmomanometers. Obviously, any basic imperfection of sphygmomanometry should not be supplemented by unnecessary errors arising from use of faulty apparatus and technique. Practicing physicians, insurance examiners, and others concerned with physical examinations will therefore wish to peruse with care suggestions for determining human blood pressure recently recommended by the American Heart Association and published elsewhere in this issue of THE JOURNAL.

Measurement of human blood pressure is such a new procedure in medical practice that the older members of the profession probably can recall its advent. Janeway's monograph,[1] published in 1904, gave a great impetus to its clinical use. Korotkoff's suggestion [2] in 1905 of the auscultatory criteria and Erlanger's experimental studies [3] in 1916-1918 were largely responsible for the displacement of other criteria for determining systolic and diastolic pressures. Since consistency in criteria and technique are of far-reaching importance, the American Heart Association and the Cardiac Society of Great Britain and Ireland appointed committees that in 1939 crystallized the best available thought on the subject at that time.[4]

In 1950 the Council for High Blood Pressure Research of the American Heart Association appointed another committee to reconsider these recommendations and to suggest revisions in accord with recent developments in laboratories and clinics. Obviously, any brief postulation of rules regarding apparatus, technique, the patient, and the examiner that results from such a study involves a few compromises of conflicting opinion. The recommendations of the committee were, with several amendments, endorsed successively by the Council for High Blood Pressure Research and the Scientific Council and released provisionally by the American Heart Association for publication.

The report contains numerous suggestions for checking and operating sphygmomanometers and for selecting cuffs of suitable sizes for limbs of different dimensions; it emphasizes the necessity of avoiding venous congestion, suggests means for improving the distinctness and quality of auscultatory sounds, and offers much other useful technical advice. The techniques for determining systolic pressure by the palpatory and auscultatory methods are briefly reviewed.

The most important feature of the report is the recommendation that the cessation of auscultatory sounds rather than their muffling (fourth phase) be generally adopted as a criterion for diastolic pressure. This recommendation was made after wide consultation and much deliberation. The reasons for this change in criterion are given in an appendix. Briefly, human studies indicate that diastolic pressure so read agrees fairly well with intra-arterial diastolic pressures recorded directly, while the dulling of sounds occurs 5 to 10 mm. above this level. Furthermore, experience indicates that different observers more nearly agree on the declining cuff pressure at which sounds cease than that at which muffling or dulling occurs.

In circulatory conditions in which no cessation of sounds takes place until very low pressures are reached, the phase at which change of sound occurs may, if determinable, be recorded, but its value as a criterion of diastolic pressure remains doubtful.

The report makes no mention of blood pressures that should be considered within normal ranges at different ages. The committee evidently felt that an evaluation of current opinion was beyond its assignment and that such interpretations might advisedly be left to individual physicians or to directives issued by insurance companies or other agencies. Since there have been great shifts in opinion in recent decades, it is hoped that another committee may soon be appointed to guide practitioners in their judgments.

1. Janeway, T. C.: The Clinical Study of Blood-Pressure, New York, D. Appleton & Company, 1904.
2. Korotkoff, N. S.: Note on the Demonstration of the Auscultatory Method of Blood Pressure Measurement in St. Petersburg, Oct. 20, 1905, Ber. kaiserl. Militärärztl. Akademie Petersburg **12**: 395 (Dec.) 1905.
3. Erlanger, J.: Studies in Blood Pressure Estimations by Indirect Methods: II. The Mechanism of the Compression Sounds of Korotkoff, Am. J. Physiol. **39**: 82-125 (March) 1916. The Preanacrotic Phenomenon and Its Relation to the Arterial Compression Sounds of Korotkoff: A Demonstration, Proc. Am. Physiol. Soc., 30th Annual Meeting, **45**: 565-566 (March) 1918.
4. Committees for the Standardization of Blood Pressure Readings of the American Heart Association and of the Cardiac Society of Great Britain and Ireland: Standardization of Blood Pressure Readings: Joint Recommendations of the American Heart Association and the Cardiac Society of Great Britain and Ireland, Am. Heart J. **18**: 95-101 (July) 1939; Standard Method for Taking and Recording Blood Pressure Readings, Special Articles, J. A. M. A. **113**: 294-297 (July) 1939.

PITUITARY IRRADIATION IN MALIGNANCY

In recent years, temporary control of certain neoplasms, particularly of carcinoma of the prostate and of the mammary gland, has been achieved by castration or by administration of large doses of androgens or estrogens. Why such an alteration of hormonal balance should be therapeutically effective is not yet known, although the subject has received widespread attention. Among the theories advanced is the suggestion that the beneficial effects may be due to alterations in pituitary function. As a consequence, attempts have been made to reduce pituitary function by irradiation of the pituitary. Preliminary results, however, have not been successful owing to the apparent high resistance of the normal pituitary gland to x-ray irradiation.[1] Kelly and his associates irradiated the pituitaries of three adult women patients with advanced cancer with doses of 8,100 to 10,000 r. Two months after irradiation there were no clinical or laboratory evidences

V 147
1951

of reduced pituitary function, and no alteration in the growth of the tumors. Two of the patients died three and four and one-half months, respectively, after completion of the irradiation therapy. Necropsy revealed no morphological changes in the pituitary gland or in other endocrine organs and no changes in the neoplasm. Such results seem to indicate that attempts to determine whether pituitary inhibition plays a role in controlling neoplastic growths will have to await the development of suitable surgical techniques for hypophysectomy. They also indicate that caution should be exercised in interpreting reportedly beneficial results obtained by irradiation of the pituitary in doses ranging from 50 r to 2,000 r in such varied conditions as essential hypertension and thyrotoxicosis.

METHONIUM DERIVATIVES IN HYPERTENSION

Pharmacologic studies of Barlow and Ing [1] and of Paton and Zaimis [2] on a series of polymethylene bis-trimethylammonium salts revealed that the decane (C_{10}) derivative paralyzes transmission at the neuromuscular junction while the pentane (C_5) and hexane (C_6) derivatives paralyze transmission at the ganglionic synapse. As a result of these studies, the decane derivative (decamethonium) has been introduced clinically as a curarizing agent while pentamethonium and hexamethonium, the C_5 and C_6 derivatives, respectively, are undergoing extensive clinical trials as agents for the treatment of hypertension.

Arnold and his associates [3] demonstrated with the aid of the optical digital plethysmograph that intravenous injection of pentamethonium iodide in normal persons causes peripheral vasodilatation. The dilatation begins within a minute of injection and persists for at least an hour. Injection of the drug in normal persons, according to Arnold and Rosenheim,[4] caused little if any change in the blood pressure unless the erect posture was assumed, when pronounced hypotension occurred. These authors administered the drug to 15 patients with various forms of hypertension and noted a sharp fall in blood pressure after each injection. The fall began within a minute and reached a maximum in two to five minutes. The action of pentamethonium iodide was similar to that of tetraethylammonium chloride, but was more potent and lasted longer. An excessive fall in blood pressure was the only serious toxic effect observed. This could be counteracted by recumbent posture and by repeated injections of epinephrine.

Saville [5] treated five patients with severe hypertension with pentamethonium bromide. The initial improvement obtained with the drug was maintained in all but one patient. The condition of the last patient, however, was so grave that symptomatic relief was the most that could be expected. Severe symptoms were relieved for as long as six months, and there was no sign that the drug was losing its effect. Saville believes that blood pressure levels can be influenced almost at will by means of this drug and that its effect on the diastolic pressures is particularly important. Its real value appears to be its ability to relieve, at least temporarily, symptoms which are not only distressing but are also of grave significance.

Campbell and Robertson [6] treated eight patients with severe hypertension with hexamethonium bromide, with a decided lowering of blood pressure and relief of symptoms. Oral medication led to an immediate fall in blood pressure to a level that could be maintained by a daily total dose of 2 to 3 gm. Headache was abolished, papilledema markedly regressed, and vision improved in every case. Blurring of vision, dry mouth, nausea and heartburn, and constipation were present in every case from the beginning of treatment. These side-effects were not severe; they disappeared during the first two weeks and recurred and disappeared with any significant increase in dosage.

Locket [7] and his associates reported three instances of probable bromide intoxication among 46 patients treated with hexamethonium or pentamethonium bromide for hypertension. In all cases except one, oral administration of either drug failed to keep the blood pressure down, and the blood pressure of every patient seen as an out-patient remained at the pretreatment level, although many patients said they felt better. The initial fall in blood pressure obtained with methonium compounds was no greater than that produced in many patients by rest in bed, and the authors suggest that the subjective improvement reported may have been due in part to the sedative action of the bromide ion.

The experience of Smirk and Alstad [8] is in sharp contrast with that of Locket. They treated 53 patients with essential hypertension for periods of 2 to 14 months. Administration of adequate doses of pentamethonium or hexamethonium bromide resulted in a decrease in blood pressure to well below the basal level even with the patient in the horizontal posture. Small initial doses of 15 mg. of the drug given subcutaneously with the patient in the sitting posture decreased the blood pressure below the basal level in 29 out of 57 patients. Reduction of the blood pressure to below the basal level could be effected in almost all patients in the standing and sitting postures, and probably in the lying posture provided an appropriate dose was given. Some tolerance was acquired within a few days of administration of the drug, the dosage needed to produce a given effect continuing to increase for some weeks. Relief of headache was one of the most striking symptomatic effects of treatment of

1. Meeting of the Subcommittee on Steroids and Cancer, Editorial, J. A. M. A. **146**: 655 (June 16) 1951. Kelly, K. H.; Feldsted, E. T.; Brown, R. F.; Ortega, P.; Bierman, H. R.; Lowbeer, B. V. A., and Shimkin, M. B.: Irradiation of the Normal Human Hypophysis in Malignancy: Report of Three Cases, Receiving 8,100-10,000 r Tissue Dose to the Pituitary Gland, J. Nat. Cancer Inst. **11**: 967 (April) 1951.

1. Barlow, R. B., and Ing, H. R.: Curare-like Action of Polymethylene *bis*-Quaternary Ammonium Salts, Nature, London **161**: 718 (May 8) 1948.

2. Paton, W. D. M., and Zaimis, E. J.: Curare-like Action of Polymethylene *bis*-Quaternary Ammonium Salts, Nature, London **161**: 718 (May 8) 1948; Clinical Potentialities of Certain *bis*-Quaternary Salts Causing Neuromuscular and Ganglionic Block, ibid. **162**: 810 (Nov. 20) 1948.

3. Arnold, P.; Goetz, R. H., and Rosenheim, M. L.: Effect of Pentamethonium Iodide on the Peripheral Circulation, Lancet **2**: 408 (Sept. 3) 1949.

4. Arnold, P., and Rosenheim, M. L.: Effect of Pentamethonium Iodide on Normal and Hypertensive Persons, Lancet **2**: 231 (Aug. 20) 1949.

5. Saville, S.: Pentamethonium in Hypertension, Lancet **2**: 358 (Sept. 2) 1950.

6. Campbell, A., and Robertson, E.: Treatment of Severe Hypertension with Hexamethonium Bromide, Brit. M. J. **2**: 804 (Oct. 7) 1950.

7. Locket, S.: Methonium Compounds in the Treatment of Hypertension, Brit. M. J. **1**: 778 (April 14) 1951.

8. Smirk, F. H., and Alstad, K. S.: Treatment of Arterial Hypertension by Penta- and Hexamethonium Salts Based on 150 Tests on Hypertensives of Varied Aetiology and 53 Patients Treated for Periods of Two to Fourteen Months, Brit. M. J. **1**: 1217 (June 2) 1951.

hypertension with these salts. In all the 25 patients under treatment who had reversible retinal changes, such as hemorrhages, soft exudates, or retinal edema, there was a distinct improvement; in many instances the abnormality disappeared. An initial dose of 15 mg. subcutaneously usually caused a considerable fall in blood pressure. The response to later doses indicated habituation to the action of the drug, 250 mg. per injection often having no greater effect than was initially produced by 15 mg. In this group of 53 patients, there was one death from cerebral hemorrhage.

Smirk and Alstad emphasize that fall in blood pressure following these drugs is influenced by posture, being greater as the patient approaches the vertical. The hypotensive action of the methonium salts is enhanced in patients on a salt-free diet to such a degree that dangerous reactions may occur if the effect of this potentiation is not allowed for in determining dosage. Hypertensive headaches can be relieved in most patients. The relief of signs and symptoms in patients treated over a period of months was prompt and striking. The available clinical reports leave little doubt as to the hypotensive effect of the methonium salts. However, the method of administration, the dosage, and the question of the ultimate effect on the course of the hypertensive disease are some of the problems that must be elucidated.[9]

URINARY EXCRETION OF COXSACKIE VIRUS

In listing the sources from which she had isolated Coxsackie virus, Howitt,[1] of the U. S. Public Health Service, included the urine of one patient. Because of the possible epidemiologic significance of this finding, Pappenheimer [2] and associates, of Harvard University, tested the possibility of urinary viral excretion in laboratory animals.

Their initial experiments were made with newborn mice inoculated intraperitoneally with a 1:1000 dilution of Conn. no. 5 strain of Coxsackie virus. After 48 hours, at which time the mice showed the usual signs of illness, urine was obtained by direct aspiration of the bladder with a tuberculin syringe. After the addition of penicillin and streptomycin, 0.02 cc. of 1:3 dilution of this urine was inoculated intraperitoneally into 1 to 2 day old mice. Three days later 9 of the 10 mice that received the injection were dead or missing. The surviving mouse was killed and histological study showed typical lesions of Coxsackie infection. From tissue extracts, typical Coxsackie virus was demonstrated by serial passage in newborn mice.

Pappenheimer and his associates found that in adult mice the Conn. no. 5 virus regularly produced severe lesions of the pancreas and that the virus could be maintained in adult mice by serial passage of pancreatic suspensions. Furthermore, in several instances, urine from infected adults produced typical lesions of Coxsackie virus when injected into young mice. These findings are contrary to the generally held opinion that adult mice are not susceptible to infection with the Coxsackie group of viruses.

9. Paton, W. D. M.: The Paralysis of Autonomic Ganglia with Special Reference to the Therapeutic Effects of Ganglionic-Blocking Drugs, Brit. M. J. 1: 773 (April 14) 1951.

1. Howitt, B. F.: Recovery of the Coxsackie Group of Virus from Human Sources, Proc. Soc. Exper. Biol. & Med. 73:443 (March) 1950.

2. Pappenheimer, A. M.; Kunz, L. J., and Richardson, S.: Excretion of Coxsackie Virus (Conn. No. 5 Strain) in the Urine of Infected Mice, Proc. Soc. Exper. Biol. & Med. 77:405 (July) 1951.

MONEY FOR TOBACCO

The Bureau of Medical Economic Research of the American Medical Association has made available for some time data on expenditures for personal pleasure, necessities of life, and illness. The Bureau has shown conclusively that the money spent for illness is small when compared to that used for more pleasant interests. There long has been advanced the idea that if even an amount equal to that used for tobacco were put aside it would provide the necessary monetary cushion when illness strikes. Neither the Bureau nor the Association has suggested that one should give up tobacco, believing that such a choice is for the user to make. If he derives pleasure let him partake, unless tobacco should be omitted because of possible harmful effects on his health. We have contended repeatedly, however, that the user of tobacco or alcohol, the person who drives a car for pleasure, and those who enjoy the theater when they wish, to mention just a few, can equally well set aside sufficient money for insurance plans. The cost is no greater, and, when used, the benefits are much better.

Recently there was in the press a report revealing that consumers in many countries now spend 3 to 5 per cent of their total income on tobacco products. In addition, the author of this report offered the very questionable statement: "Experience has demonstrated that for all practical purposes tobacco is an essential commodity in that it is necessary to maintain the morale of those who are accustomed to using it." We doubt if tobacco can be truthfully said to be essential for morale, even though it has pleasing properties. We trust that this man did not intend to convey an admission that there is addiction to tobacco, an interpretation that some readers might place on such a statement. Be that as it is, however, if one can spend such a large percentage of his income on one personal pleasure he can divert a similar percentage for insurance to pay hospital and sickness bills when they arise. As we said before, we hold no brief for or against tobacco or any other source of pleasure, unless, of course, it is contraindicated for health reasons. Each of us has his own way of seeking pleasure and will defend the right to make the choice. At the same time, in deference to our families and the community, we have the responsibility of making secure our independence during periods when illness is present. No one who wishes to maintain the advantages of freedom would want to be told what he can and cannot do. To maintain these advantages, however, he must be willing to accept his share of the responsibility associated with preserving freedom. Since there are many who believe that the easiest road to a welfare state is by nationalization of medical care and then of other activities it is necessary for all who want to prevent this step to do what they can to prevent it. One of the most successful ways would be to remove excuses for nationalization of medical care, which in part can be accomplished by the provision of adequate insurance protection on a voluntary basis.

V 147
1951

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Voluntary Health Insurance

Senator Hill of Alabama and Senator Aiken of Vermont introduced S. 2171, which would authorize grants to enable states to survey, coordinate, supplement, and strengthen their existing health resources so that hospital and medical care may be obtained by all persons. The bill seeks to accomplish two objectives: 1. It makes available federal funds to states on a formula ranging between 33⅓% and 75% of the total to be spent by the state in establishing voluntary hospital and medical care insurance programs for sub-income persons, with subscription rates based on ability to pay. 2. It makes available federal funds on a 50-50 matching basis so that states might (*a*) survey needs for necessary diagnostic facilities, (*b*) make a survey of mental, tuberculosis, and chronic disease facilities, (*c*) make a survey of areas of the state where there is a shortage of physicians, and (*d*) make a survey of enrolment in voluntary prepayment insurance plans, and finance the cost of making plans to correct the foregoing conditions.

The term "hospital and medical care" includes surgical, obstetrical, and medical services furnished in a hospital and hospital services incident thereto not in excess of 60 days in any year, and also includes diagnostic and outpatient clinic services furnished in a hospital or diagnostic clinic. The term "hospital" includes any hospital with an average patient stay of less than 30 days or any diagnostic clinic that conforms to state regulations.

States would be required to submit plans in conformity with certain conditions set forth in the bill and would be required to follow general regulations issued by the Surgeon General, Public Health Service (Federal Security Agency), which meet with the approval of the Federal Hospital and Medical Care Council. Once such regulations are promulgated, the council has only advisory powers. Generally, state plans must provide for an acceptable method of determining the eligibility of persons who cannot afford to pay all or any part of voluntary prepayment plans, both nonprofit and others, the manner in which the state agency will stimulate enrolling the population in plans, and the general methods of administration of the health plans.

Eligible states would designate a single state agency and could use the agency already selected under the Hospital Survey and Construction Act. They would establish a state hospital and medical care council of 11 members, which includes persons from the fields of hospital and medical care, at least two physicians, two hospital administrators, and two persons experienced in administration of voluntary prepayment plans. States must agree to make reports to the Surgeon General as required by him and to make their records accessible for inspection. Safeguards must be provided to restrict the disclosure of information concerning recipients. The state must issue "service cards" to persons whose subscriptions are subsidized, so that there is no distinction or discrimination in the type of hospital or medical treatment that they receive. Service cards would be issued prior to the need for hospitalization or medical service. States would also create a Hospital and Medical Care Authority within each of the regions of the state. These authorities would include representatives of groups such as medical associations, hospital associations, and hospital prepayment associations.

The Federal Hospital and Medical Care Council would be made up of 10 members appointed by the Administrator of the Federal Security Agency: four outstanding in fields pertaining to hospital and medical care, of which two shall be doctors of medicine and two hospital administrators; two persons experienced in the administration of voluntary prepayment plans; and four to represent consumers. Each would hold office for a term of five years. The Council would appoint special advisory and technical committees.

The bill carries two specific safeguards to eliminate federal control. The first prohibits the Surgeon General from exercising authority with respect to the selection, tenure of office, or compensation of any person employed by the state agency. The second is as follows: "Except as otherwise specifically provided, nothing in this title shall be construed as conferring on any federal officer or employee the right to exercise any supervision or control over the administration, personnel, maintenance, or operation of any hospital utilized for furnishing hospital and medical care pursuant to the provisions of this title."

States denied federal funds because the Surgeon General has ruled their plans are not in compliance may appeal to the Hospital and Medical Care Council, which may overrule the Surgeon General. No other appeal is provided.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association.

Income Deductions for Medical Expenses

An amendment to H. R. 4473, the general tax bill passed by the House of Representatives, was proposed on the Senate floor by Senator Ecton of Montana. Senator Ecton proposed that taxpayers be permitted to deduct from their adjusted gross income medical expenses including health and accident insurance premiums, up to $1,250 per year for single persons and $2,500 per year for the taxpayer and his dependents. The present law which this proposal would amend exempts only such expenses that are in excess of 5% of income with the $1,250 and $2,500 limitations. This proposal was defeated on the Senate floor on September 27.

Multiple Sclerosis Institute

Representative Tollefson of Washington introduced H. R. 5414, which proposes to amend the Public Health Service Act to provide for research and investigation with respect to the cause, prevention, and treatment of multiple sclerosis. His bill would establish a separate institute for this purpose to be administered by the Surgeon General of the Public Health Service with the assistance of a National Multiple Sclerosis Council.

Armed Forces Reserve Bill

Representative Brooks of Louisiana introduced H. R. 5426, relating to the reserve components of the Armed Forces of the United States; this is similar to H. R. 5277 (previously reported). This final subcommittee bill includes technical changes and was favorably reported to the full committee on September 25. This version of the proposed Armed Forces Reserve Program continues to set up Ready Reserve, Standby Reserve, and Retired Reserve components.

PHOTOGRAPHIC ASSOCIATION AWARD

The Biological Photographic Association, holding its 21st annual convention in Boston, presented its 1951 award for outstanding achievement to Mr. Ralph P. Creer, Chicago, secretary of the American Medical Association's committee on medical motion pictures. The association cited Mr. Creer for demonstrating many achievements in photography in the past 20 years. He was one of the organizers of the Biological Photographic Association and served as its first president. In World War II photographic recording of casualties and treatments on all fronts became his responsibility. The work accomplished by the units he organized had a large part in the rapid growth of postwar biological photography.

DEATH OF JOHN HAYES

John F. Hayes, a lawyer, died at his home in the District of Columbia, September 17, aged 73. Few physicians knew of the activities of Mr. Hayes on behalf of medicine because he shunned the limelight. Beginning about 1920, he served the American Medical Association in the role of a Washington correspondent, and from 1933 until his death he was associated with the Bureau of Legal Medicine and Legislation, gathering information of interest to medicine and executing with intelligence and dispatch the many requests made of him. Despite the fact that he was a layman, John Hayes always seemed to sense the medical implications of events. Medicine will miss his services.

MEDICAL NEWS

CALIFORNIA

Fluoridation of Water Supplies.—Pleasanton and Rio Vista will probably be the first California communities to add fluoride to their public water systems for the reduction of dental decay, the permits having recently been approved by the state board of public health.

Designated "Perpetual Student."—Dr. Emile F. Holman, professor of surgery, Stanford University School of Medicine, San Francisco, was recently designated "Perpetual Student" of St. Bartholomew's Medical College, London, following a period as visiting professor of surgery at St. Bartholomew's Hospital, April 26 to May 29. Other Americans so designated have been Drs. Harvey Cushing, Hugh Cabot, and Evarts Graham, St. Louis.

Visiting Professor of Oncology.—Dr. W. Edward Chamberlain, Philadelphia, has been appointed 1951 visiting professor of oncology in the Cancer Research Institute of the University of California Medical School, San Francisco. Dr. Chamberlain, former chief of radiology at Stanford University School of Medicine, is presently head of the department of radiology at Temple University. During his appointment, which is for the month of October, he will deliver lectures and participate in medical conferences and rounds at both the university and Stanford Medical Schools. He will also speak at a meeting of the Laennec Society and give a public lecture on the Berkeley campus. Bay area physicians and medical scientists are invited to attend Dr. Chamberlain's lectures and conferences.

COLORADO

State Medical Election.—At the annual meeting of the Colorado State Medical Society in Denver, Sept. 18-21, Dr. Harry C. Bryan, Colorado Springs, assumed the presidency. Officers elected include Dr. William A. Liggett, Denver, president-elect, and Dr. Claude D. Bonham, Boulder, vice-president. Dr. George A. Unfug, Pueblo, was reelected delegate to the American Medical Association as was his alternate Dr. Herman C. Graves, Grand Junction. The next annual session will be held in Estes Park, Sept. 9-12, 1952.

Course in Chest Diseases.—A course for physicians will be given at the University of Colorado Medical Center on Oct. 18-20, sponsored by the Colorado Trudeau Society and the Rocky Mountain Chapter of the American College of Chest Physicians. The instructors represent the medical staffs of the National Jewish Hospital, the Denver Veterans Administration Hospital, Denver and Colorado General hospitals, and Fitzsimons Army Hospital. Dr. Michael L. Furcolow, Kansas City, senior surgeon, U. S. Public Health Service, will be guest speaker at a dinner for registrants and instructors at the University Club on Friday, Oct. 19. The registration fee is $5, and tuition is $25. Applications and inquiries should be sent to the Director of Graduate and Postgraduate Medical Education, University of Colorado Medical Center, 4200 E. Ninth Ave., Denver 7.

Honorary Memberships in State Society.—At the annual meeting of the Colorado State Medical Society in September, honorary memberships were bestowed on Mr. J. W. Holloway, LL.B., Chicago, Director of the Bureau on Legal Medicine and Legislation of the American Medical Association, and on Dr. Andrew S. Brunk, Detroit. Mr. Holloway was recommended because of aid given the state society in combating the proposed constitutional amendment at the 1938 general election. He spent many weeks with the society guiding it legally and educating the medical profession and the medical students in the implications of the proposed legislation. Dr. Brunk was cited for founding, serving as president, and being an active member of the Conference of Presidents and Other Officers of State Medical Associations, organized to bring about greater activity in the fields of medical economics, medical sociology, and public relations and now serving to keep current officers of state societies in touch with national affairs.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

CONNECTICUT

American Medical Education Fund Campaign.—The Council of the Connecticut State Medical Society on Sept. 13 authorized a state-wide campaign for individual contributions for a Connecticut fund for the American Medical Education Foundation. The campaign is under the direction of the Committee on Public Relations, Dr. William G. H. Dobbs, Torrington, chairman. Contributions may be credited to any medical school designated by the donor.

GEORGIA

General Practice Session.—The annual meeting of the Georgia Academy of General Practice will be held at the Idle Hour Country Club, Macon, Oct. 25 under the presidency of Dr. Walter W. Daniel, Atlanta. Guest speakers at the scientific session include the following:

Robert K. Hancock, Atlanta, Management of Eclampsia and Preeclampsia.
Robert C. Pendergrass, Americus, Practical Application of the Barium Enema.
Paul B. Beeson, Atlanta, Evaluation of Clinical Importance of Corticotropin (ACTH) and Cortisone.
Philip A. Mulherin, Augusta, Scurvy.
Philip Thorek, Chicago, The Acute Abdomen.

Mr. Leo E. Brown, Chicago, Public Relations Director of the American Medical Association, will be the special guest speaker at the noon luncheon.

ILLINOIS

University Appointment.—Dr. William S. Kroger, clinical instructor at the University of Illinois Medical School from 1943 to 1946, has been appointed to the faculty of the Chicago Medical School as assistant professor of gynecology. Dr. Kroger is attending obstetrician and gynecologist at Edgewater Hospital and member of the courtesy staff of Chicago Lying-in Hospital and St. Francis Hospital, Evanston.

Chicago

Baer Lecture.—The second annual Joseph L. Baer Lecture of the Chicago Gynecological Society will be given Oct. 19 at Knickerbocker Hotel. The speaker will be Dr. Dugald Baird, Regius Professor of Obstetrics and Gynecology, University of Aberdeen, Scotland, whose subject will be "The Etiology and Prevention of Difficult Labor."

Pusey Memorial Lecture.—Dr. John H. Talbott, professor of medicine at the University of Buffalo Medical School and physician-in-chief of the Buffalo General Hospital, will deliver the fifth William Allen Pusey Memorial Lecture of the Institute of Medicine of Chicago at a joint meeting with the Chicago Society of Internal Medicine in the Grand Ballroom of the Drake Hotel Oct. 22 at 8 p. m. Dr. Talbott's subject will be "Experimental Observations in Acute and Chronic Gout."

Lectures on Psychiatry.—The Chicago Medical School is presenting a series of lectures on aspects of psychiatry each week beginning Oct. 17 and extending through Nov. 28 at 12:30 p. m. in Amphitheatre A. Lectures are as follows:

Oct. 17, Rudolf Dreikurs, Chicago, Holism in Medicine.
Oct. 24, Henry W. Brosin, Pittsburgh, Significant Advances in Psychiatry.
Nov. 7, Gudmund Magnussen, Copenhagen, Denmark, Industrial Psychiatry.
Nov. 14, Kenneth Soddy, London, England, Emotional Development of Childhood.
Nov. 21, E. Eduardo Krapf, Buenos Aires, Argentina, Psychology of Old Age.
Nov. 28, Andre Repond, Monthey, Switzerland, Psychotherapeutic Treatment of Mental Disorders.

V 14
1951

Dr. Bachmeyer Becomes Emeritus.—Dr. Arthur C. Bachmeyer, associate dean of the University of Chicago's division of biological sciences, became emeritus Oct. 1. Dr. Bachmeyer was honored at a dinner by the university science division Sept. 25 at the Windermere Hotel. Vice-president R. Wendell Harrison, Dr. Lowell T. Coggeshall, dean of the division of biological sciences, and Dr. Lester R. Dragstedt, chairman of the department of surgery, were guest speakers. Dr. Bachmeyer has been president of the American Association of Medical Colleges (1951), the American College of Hospital Administrators (1940), and of the American Hospital Association (1926). He was appointed associate dean of the university's medical and biological division in 1935 and had previously served as dean of the College of Medicine of the University of Cincinnati (1925-1934). During the past two years he has been consultant to the university's 10 million dollar medical building program and will remain a consultant on the construction of the $4,400,000 Gilman Smith and west wing hospitals, and the $2,578,650 Argonne Cancer Research Hospital now being built on the Midway campus by the Atomic Energy Commission.

MICHIGAN

Appoint Radiology Division Head.—Dr. James E. Lofstrom has been appointed special professor of radiology and chairman of the division in the Wayne University College of Medicine, Detroit, and head radiologist at the City of Detroit Receiving Hospital. Funds for the university's contribution to his salary are available through a special grant from the National Fund for Medical Education. Dr. Lofstrom has been a member of the Wayne faculty since 1935.

MINNESOTA

Hospital News.—Littlefork Hospital, a 22-bed institution, was made the property of the village of Littlefork at a meeting of the Littlefork Hospital Association, Inc., in July. The hospital is continuing to function as a general hospital with Dr. Roger A. MacDonald as administrator. The association, a nonprofit organization, is operating the hospital for the village.

State Has Lowest VD Rate.—According to the U. S. Public Health Service, Minnesota has the lowest venereal disease rate in the nation. During 1950 not one of the 75,054 babies born was infected with syphilis. The over-all number of gonorrhea and syphilis cases has been reduced. Chronic gonorrhea has almost disappeared. There is also a notable change in the incidence of syphilis. Formerly the majority of cases reported were early and occurred in persons under 30 years of age. Now the majority of cases reported are in persons over 30 or 40, while the type predominating is late syphilis, latent, cardiovascular, or neurological.

MISSOURI

Heart Disease in Children.—Lectures on heart disease in children are being given at St. Louis University School of Medicine, St. Louis, in Lecture Room A at 7:30 p. m. each Friday evening from Oct. 5 through Dec. 21. The lectures are under the auspices of the school and St. Mary's Group of Hospitals and are co-sponsored by the Missouri Division of Health and the Missouri State Medical Association. They are open to all physicians, interns, residents, medical students, nurses, dentists, and other hospital and allied professional personnel in the state. Registration is not required, and there are no tuition or registration fees. Remaining lectures include the following:

Oct. 19, Tetralogy of Fallot—Tricuspid Atresia and Transposition of the Great Vessels.
Oct. 26, Patent Ductus Arteriosis and Coarctation of the Aorta.
Nov. 2, Auricular and Ventricular Septal Defects and Subaortic Stenosis and Pulmonary Stenosis.
Nov. 9, Medical Management of the Cardiac Child.
Nov. 16, Surgical Management of the Cardiac Child.
Nov. 13, Pathology of Acute Rheumatic Fever and Rheumatic Heart Disease.
Nov. 30, Etiology and Pathogenesis of Acute Rheumatic Fever.
Dec. 7, Diagnosis of Acute Rheumatic Fever.
Dec. 14, Treatment of Acute Rheumatic Fever.
Dec. 21, Functional Murmurs.

MONTANA

State Medical Association Report.—The Montana Medical Association at its meeting in Great Falls, Sept. 13-16, adopted a proposal to study and select for the benefit of its members, a group health and accident insurance plan. It also approved a proposal to develop an active and effective placement service for physicians seeking location in the state. Dr. Francis L. McPhail, Great Falls, was installed as president. Dr. James M. Flinn, Helena, was chosen president-elect; Dr. Brownlow C. Farrand, Jordan, vice-president; Dr. Everett H. Lindstrom, Helena, secretary-treasurer, and Dr. Wyman J. Roberts, Great Falls, assistant secretary-treasurer.

NEW JERSEY

Henry Memorial Lecture.—Dr. Max Thorek, Chicago, will deliver the first annual Frank C. Henry Jr. Memorial Lecture of the Academy of Medicine in the Raritan Bay Area, Oct. 17 at Oak Hills Manor, Metuchen. Dr. Thorek's subject will be "Surgical Dangers." The memorial lectures have been named in honor of the late chief of surgery of Perth Amboy General Hospital, who died March 7 in an automobile accident.

Graduate Week.—The Academy of Medicine of Northern New Jersey will hold its graduate week in Newark Oct. 29-Nov. 2. The program is made up of panel discussions, case presentations, clinics, scientific papers, and evening lectures. Full days will be devoted beginning Oct. 29 to dentistry, neuropsychiatry, cardiovascular diseases, internal medicine, and cancer. Papers will be given by local physicians as well as those from out of state.

NEW YORK

Medical College Appointments.—Dr. Gordon W. Searle, formerly a fellow in the department of physiology at Northwestern University School of Medicine, Chicago, has joined the staff of Albany Medical College as an assistant professor of physiology. Dr. Lucile Williams, formerly instructor in the department of pharmacology at Creighton University School of Medicine, Omaha, Neb., has been appointed assistant professor of pharmacology.

Postgraduate Lectures.—The Utica Academy of Medicine will hear a lecture at 8 p. m. Oct. 18 at the Hotel Utica in Utica by Dr. Samuel W. Moore, New York, on "Surgical Aspects of Peptic Ulcer." Another lecture has been scheduled for the academy on Dec. 20, when Dr. Paul Reznikoff, New York, will speak on "Diagnosis and Treatment of Anemia." On Nov. 14 at 9 p. m. the staff of St. Joseph's Hospital will hear Dr. George A. Wolf Jr., New York, speak on "Headache." Dr. Samuel W. Moore, New York, will speak on "Pathology and Complications of Acute Cholecystitis," at a dinner meeting of the Jefferson County Medical Society Nov. 20 at 6:30 p. m. at the Black River Valley Club, in Watertown.

General Practice Assembly.—The New York State Academy of General Practice will hold its scientific assembly at the Hotel Statler, New York, Oct. 29-31 under the presidency of Dr. J. Stanley Kenney, New York. The program has been divided into symposiums on corticotropin (ACTH) and cortisone, newer therapy, cancer, functional disturbances, nutritional and metabolic diseases, and everyday practical procedures. Out-of-state speakers include the following:

Philip S. Hench, Rochester, Minn., Status in Clinical Medicine.
Edward W. Lowman, Rochester, Minn., Rehabilitating the Arthritic.
Chester S. Keefer, Boston, Antibiotics.
Frank H. Lahey, Boston, Gastrointestinal Cancer.
Chevalier Jackson Jr., Philadelphia, Endoscopy Diagnosis.
Oswald Swinney Lowsley, New York, Genitourinary Cancer.
Walter C. Alvarez, Chicago, Causes of Great Nervousness.
Wingate M. Johnson, Winston-Salem, N. C., Geriatrics.
Elmer L. Sevringhaus, Nutley, N. J., The Obese Patient.
Robert Elman, St. Louis, Parenteral Feeding in Surgical Patient.
William Jefferson Darby, Nashville, Tenn., Nutritional Disturbances, The Role of B_{12}, Folic Acid and Protein.
Walter J. Reich, Chicago, Office Gynecology.
Eugene Regen, Nashville, Tenn., Fractures Suited for Ambulatory Treatment.

New York City

Dr. Hubbard Appointed Assistant Dean.—Dr. William N. Hubbard Jr. has been appointed assistant dean of New York University College of Medicine, a unit of the New York University-Bellevue Medical Center, effective Oct. 1. He will continue as an instructor in medicine and a member of a research team investigating SK-SD (streptokinase-streptodornase). Dr. Hubbard, a graduate of the college of medicine in 1944, joined the college of medicine faculty in 1949.

Lectures on Neoplastic Diseases.—The division of neoplastic diseases at Montefiore Hospital for Chronic Diseases will present a series of lectures during the academic year 1951-1952. The lectures began Oct. 5. Those remaining through January are as follows:

Oct. 19, Presentation of Cases.
Nov. 2, Tumors in Children, Marcus M. Ravitch, Baltimore.
Nov. 16, Presentation of Cases.
Dec. 7, Presentation of Cases.
Dec. 21, Mechanism of Bone Formation and Bone Destruction, Alexander B. Gutman, New York.
Jan. 4, Inhibition of Tumors with Steroid Hormones, Charles Huggins, Chicago.
Jan. 18, Presentation of Cases.

OHIO

Academy Lecture Series.—Physicians in Toledo and surrounding areas are invited to a two-day lecture series conducted by Dr. Fred J. Hodges, professor of roentgenology at the University of Michigan, Ann Arbor. The dates of the lectures are Oct. 18 and 19 at 12 noon, 4:30 p. m., and 8 p. m. They are being sponsored by the Academy of Medicine of Toledo and Lucas County. The title of the series is "X-Ray Aspects of Gastrointestinal Diagnosis."

OKLAHOMA

Research Institute Appointment.—Dr. Robert H. Furman, formerly assistant professor of medicine at Vanderbilt University School of Medicine in Nashville, Tenn., and assistant visiting physician of Vanderbilt University Hospital, has been appointed head of the section on cardiovascular disorders at the Oklahoma Medical Research Institute and Hospital, Oklahoma City. Dr. Furman will also have an appointment as associate professor of research medicine, beginning his work early in 1952. He will be studying metabolic alterations in patients with cardiovascular disorders and will participate in the undergraduate and graduate training program of the institute and hospital.

OREGON

Dr. Fowler Resigns from Medical Board.—Dr. Frank E. Fowler, Astoria, past president and veteran member of the Board of Medical Examiners, has resigned. He has served as a member of the board for the past 12 years except for a period when he served overseas as lieutenant colonel with the Medical Corps during World War II. Governor McKay has appointed Dr. Max W. Hemingway, Bend, to fill Dr. Fowler's unexpired term.

PENNSYLVANIA

State Benjamin Rush Awards.—Leo J. Buettner, Johnstown, and the American Business Club of Reading were given the Benjamin Rush Awards for 1951 by the Medical Society of the State of Pennsylvania for "outstanding lay service" in the field of better health. Presentation of the awards took place at the annual session of the medical society in Pittsburgh Sept. 17. Mr. Buettner, permanently crippled by infantile paralysis at the age of 2 years, has devoted much of his life in giving aid to the blind and other physically handicapped persons and has been named a life honorary member of both the National and the Pennsylvania Federation of the Blind in recognition of his work. The American Business Club of Reading, organized 25 years ago, has contributed largely to the health of the community, organizing a Big Brother Project to aid underprivileged children, creating an Eyeglass Fund to supply glasses to poor children of Reading, and establishing a Cerebral Palsy Treatment Center where crippled children are given treatment and supplied with corrective appliances. The awards were named after Dr. Benjamin Rush of Philadelphia, one of the nation's most distinguished physicians and a signer of the Declaration of Independence. County medical societies select nominees from among their own citizens and organizations, and from these the state medical society names the state winners. Twenty-four county medical societies submitted nominees for this year's awards.

Philadelphia

Pemberton Lecture.—Dr. William D. Robinson, director of the Rackham Arthritis Research Unit of the University of Michigan, will deliver the annual Ralph Pemberton Memorial Lecture on Oct. 25 at the Philadelphia County Medical Society building on "Gouty Arthritis."

Lectures in Medical History.—The section on medical history of the College of Physicians of Philadelphia will give six weekly lectures on medical history to the students of all the medical schools of this city at the hall of the college in Philadelphia. This course of lectures on medical history has been given each year for the past few years and is supported by the five medical schools. The lectures will be conducted by Professor Richard H. Shryock and Dr. Owsei Temkin, both of the Institute of the History of Medicine at Johns Hopkins University, Baltimore, and will be given six Monday evenings from 7 to 8 p. m. beginning Oct. 15.

TENNESSEE

Honor Public Health Officer.—Dr. Frank L. Roberts, assistant dean of the University of Tennessee College of Medicine, Memphis, has been honored by the West Tennessee Public Health Co-workers Council, which presented him a plaque for his contributions to public health at a meeting in Union City. Dr. Roberts served as county health officer in Gibson County for 12 years. He joined the staff of the college of medicine in 1937 as professor of preventive medicine and still holds that post. He was named assistant dean in 1949.

Dr. Laird Takes ECA Appointment to Burma.—Raymond L. Laird, Sc.D., associate professor of preventive medicine at the University of Tennessee Medical Units, Memphis, has resigned to become chief consultant on malaria control in Burma for the Economic Cooperation Administration. Dr. Laird will aid the southeast Asia country to formulate a malaria control program and will help medical schools in the area to develop medical programs in preventive medicine. He came to the medical units in July, 1946, from the University of Michigan School of Public Health, Ann Arbor.

WASHINGTON

State Medical Election.—At the recent annual meeting of the Washington State Medical Association Dr. Reuben A. Benson, Bremerton, was installed as president. Elected officers include Dr. Charles E. Watts, Seattle, president-elect, and Dr. Bruce Zimmerman, Seattle, secretary-treasurer.

Strauss Lecture.—The second annual Alfred A. Strauss Lecture, sponsored by the department of surgery, University of Washington, Seattle, will be given at 8:30 p. m. Oct. 26 in the Health Sciences Auditorium. Dr. Dallas B. Phemister, department of surgery, University of Chicago, will speak on "The Importance of Pathological and Radiological Studies in the Diagnosis and Treatment of Cholelithiasis."

WISCONSIN

Dr. Piaskoski to Head New Department at Marquette.—Dr. Ray G. Piaskoski, Milwaukee, has been named head of the new department of physical medicine and rehabilitation at Marquette University School of Medicine. He will organize the program at the university and a residency program at the Veterans Administration Hospital in Wood, where he is also chief of that department. Dr. Piaskoski graduated from Marquette University in 1933 and headed the department of physical medicine at Nichols General Hospital, now the Veterans Administration Hospital, in Louisville, Ky., before locating at Milwaukee. The new department was made possible by a gift from the late John G. Thompson, former head of a brass foundry in Milwaukee.

V 14
1951

GENERAL

Symposium on Exfoliative Cytology.—The American Cancer Society in conjunction with its annual meeting is holding this symposium at the Park-Sheraton Hotel, New York, Oct. 23-24. Divisions of the program are titled: What Can Exfoliative Cytology Do, Research Frontier in Cytology, What Are the Potentials of Cytology, and What Needs to Be Done to Extend Its Effectiveness.

WHO European Regional Committee.—The World Health Organization's Consultative Committee for Europe, meeting in Geneva, unanimously voted on Sept. 3 in favor of the creation of a European regional office for WHO. As a result of the vote, the committee reconstituted itself as WHO's Regional Committee for Europe and elected Dr. J. D. MacCormack, Ireland, as chairman. It also decided to establish a nuclear European regional office in Geneva in place of the existing Special Office for Europe. The committee will draft a 1953 program for Europe and will nominate a European regional director. The following countries were represented at the meeting: Austria, Belgium, Denmark, France, German Federal Republic, Ireland, Italy, Luxembourg, Monaco, Netherlands, Norway, Portugal, Sweden, Switzerland, the United Kingdom, and Yugoslavia.

Clinical Society Meeting.—The Gulf Coast Clinical Society will hold its annual meeting Oct. 18-19 at the Edgewater Gulf Hotel in Edgewater Park, Miss., under the presidency of Dr. Wesley W. Lake, Pass Christian, Miss. Visiting speakers include the following:

- Oscar Randolph Batson, Nashville, Tenn., Practical Problems in Child Care.
- Charles F. Daniels, New York, Surgical Treatment of Cancer of the Lung.
- James S. Speed, Memphis, Surgical Treatment of Common Foot Disabilities.
- Robert J. Glaser, St. Louis, Important Considerations in Rheumatic Fever.
- William F. Rienhoff Jr., Baltimore, Present Status of Surgical Treatment of the Esophagus.
- Priscilla White, Boston, Management of Complications of Diabetes.
- Bentley P. Colcock, Boston, Regional Ileitis, Ulcerative Colitis and Carcinoma of the Colon and Rectum.
- Edgar Jones, Nashville, Tenn., Problems in Diagnosis of Anemia.

There will be medical round-table luncheons and conferences on Thursday.

Omaha Midwest Clinical Society.—The annual assembly of the clinical society will be held at the Hotel Paxton in Omaha, Oct. 29-Nov. 2. Speakers outside the Midwest include the following:

- Arthur Groilman, Dallas, Texas, Treatment of Anuria and Oliguria.
- Franklin L. Payne, Philadelphia, Role of Radiation and of Surgery in the Treatment of Uterine Carcinoma.
- Harold B. Boyd, Memphis, Management of Fractures of the Upper Extremity in Children.
- Edward Ward Boland, Los Angeles, Use of Adrenal Cortical Steroids and Anterior Pituitary Adrenocorticotropic Hormone in the Treatment of Rheumatic Diseases.
- Mitchell I. Rubin, Buffalo, Renal Inflammatory Diseases in Children.
- Isidor S. Ravdin, Philadelphia, Some Nutritional Factors in the Care of Patients.
- Louis H. Bauer, Hempstead, N. Y., President-Elect, American Medical Association, The Financial Problems of Medical Education.

On Wednesday morning there will be a series of panel discussions on diagnosis and treatment of dermatologic diseases, fractures and orthopedic problems, and interpretation of roentgenograms. On Friday morning a symposium and panel discussion on blood dyscrasias is scheduled.

Fellowships in Poliomyelitis.—The National Foundation for Infantile Paralysis announces the availability of a limited number of additional postdoctoral fellowships to candidates whose interests are research and teaching in medicine and the related biological and physical sciences. The purpose of these fellowships is to increase the number of professional workers qualified to give leadership in the solution of basic and clinical research problems of poliomyelitis and other crippling diseases. The fellowships cover a period of from one to five years, and stipends range from $3,600 to $7,000 a year, with marital and dependency status considered in determining individual awards. Institutions which accept fellows receive additional compensation for expenses incurred in relation to their training programs. Eligibility requirements include United States citizenship (or the declared intention of becoming a citizen), sound health, and an M.D., Ph.D., or an equivalent degree. Selection of candidates is made by a fellowship committee composed of leaders in the fields of research and professional education. Complete information concerning qualifications and applications may be obtained from: Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Neuropsychiatrists Annual Meeting.—The Central Neuropsychiatric Association will hold its annual convention at the Hotel Nicollet, Minneapolis, Oct. 19-20 under the presidency of Dr. Frank H. Luton, Nashville, Tenn. Invited speakers include the following:

- Donald W. Hastings, Starke R. Hathaway, Ph.D., and Miss Dorothy Bell, Minneapolis, Follow-up Study of Psychiatric Patients Admitted to the University Hospitals 1938-1944.
- Fae Y. Tichy, Minneapolis, Barbiturate Encephalitis.
- Sheldon C. Reed, Ph.D., Minneapolis, Detection of Choreics Before the Onset of the Disease.
- Samuel Schwartz, Minneapolis, Metabolism of Porphyrins with Special Reference to Psychiatry and Neurology.
- Randall G. Sprague, Rochester, Minn., Physiologic Effect of Cortisone and Corticotropin (ACTH).
- Maurice B. Visscher, Minneapolis, Possibility of a Physiologic Approach to the Problems of Nervous and Mental Disease.
- Karem J. Monsour, Rochester, Minn., Spasmodic Torticollis.
- George E. Moore, William T. Peyton, and Shelley Chou, Minneapolis, Present Status of Localization of Brain Tumors by Radioactive Isotopes.
- David Daly and Mr. Reginald G. Bickford, Rochester, Minn., Observations on the Photo-Metrazol® (pentylenetetrazole) Test of Gastaut.

The annual dinner will be Friday evening.

Medical Colleges Association Meeting.—The Association of American Medical Colleges will hold its annual meeting Oct. 29-31 at French Lick Springs Hotel, in Indiana, under the presidency of Dr. Arthur C. Bachmeyer, Chicago. The first morning will be devoted to simultaneously held round-table discussions as follows:

- Regional Hospital Plans and Continuation Education of Physicians, Rudolph H. Kampmeier, Nashville, Tenn., chairman.
- The Threat of Large-Scale Research Programs to the Quality of Medical Education, Richard H. Young, Chicago, chairman.
- Medical Teaching on the Ambulant Patient, David Barr, New York, chairman.
- Group Practice in Support of Medical Education, Albert C. Furstenberg, Ann Arbor, Mich., chairman.
- Influence of Medical Care Insurance Plans on Teaching Material, Loren R. Chandler, San Francisco, chairman.
- The Means of Appraisal of the Medical Student's Progress and of the Effectiveness of Teaching, Robert Moore, St. Louis, chairman.

At the annual dinner Monday evening Herman B. Wells, LL.D., president of Indiana University, Indianapolis, will speak. The speaker at the dinner at 6:30 p. m. Tuesday will be Sir James Spence, Durham University, England.

Clearing House for Alcoholism and Drug Addiction Information.—A new organization to aid American schools in developing techniques and materials for instruction about alcohol and narcotics has been launched by educators from 11 states, the District of Columbia, and Canada, who attended the 1951 Summer School of Alcohol Studies at Yale University. The organization, to be known as the Association for the Advancement of Instruction About Alcohol and Narcotics, has made plans for future activities. Executive headquarters will be at the Yale Laboratory of Applied Physiology, New Haven, Conn. The association will serve as a clearing-house for information, and will stimulate members in developing new teaching techniques at different grade levels. It is expected that membership of the organization will be composed chiefly of individual public and private school teachers, supervisors and administrators, including health educators, school physicians, and school nurses. Membership will be open also to organizations and agencies concerned with the prevention and control of public health disorders. In addition to the executive headquarters at Yale, regional centers will probably be maintained to serve the Western and Mountain states, the Middlewest, and the South.

Society Elections.—The American Hospital Association at its recent meeting in St. Louis installed Dr. Anthony Rourke, San Francisco, as president; chose Dr. Edwin L. Crosby, Baltimore, president-elect; and reelected Dr. Arthur C. Bachmeyer, Chicago,

treasurer. Philadelphia was named the convention city for 1952. ——The American Radium Society has chosen the following officers for 1951-1952: Dr. Hugh F. Hare, Boston, president; Dr. Howard B. Hunt, Omaha, president-elect, and Dr. John E. Wirth, Pasadena, Calif., secretary.——The American Congress of Physical Medicine at its recent meeting in Denver selected the following officers for the coming year: Dr. Robert L. Bennett, Warm Springs, Ga., president; Dr. Walter M. Solomon, Cleveland, president-elect; Dr. Frances Baker, Burlingame, Calif., secretary; Dr. Frank H. Krusen, Rochester, Minn., treasurer, and Dr. Walter J. Zeiter, Cleveland, executive director. Miss Dorothea C. Augustin, Chicago, is the new executive secretary of the association, following the recent death of Marion G. Smith.——The American Medical Writers' Association at its recent annual meeting installed Dr. Arkell M. Vaughn, Chicago, as president, and chose the following officers for the coming year: Dr. Lewis J. Moorman, Oklahoma City, president-elect, and Dr. Harold Swanberg, Quincy, Ill., secretary-treasurer. A new constitution was adopted at Peoria.

Exchange Fellowships in Cancer Research.—British-American Exchange Fellowships in Cancer Research of the American Cancer Society are offered to citizens of the United States for advanced training in Great Britain in specialized fields of investigation pertaining to cancer. Similar fellowships are awarded by the British Empire Cancer Campaign to British scientists for study in the United States. Fellowships are open to citizens of the United States who possess the degree M.D., Ph.D., or Sc.D. Applications should state the institution where the fellow plans to work in Great Britain, the individual under whom the fellow desires to work, what problem he intends to investigate, and when he wishes to start. Fellowships will be awarded for one year, and the annual stipend will be $4,020. An allowance of $600 is made for travel to the site of the fellowship in Great Britain. University staff appointment with teaching duties agreeable to the fellow is permitted, provided it is acceptable to the Committee on Growth, the American Cancer Society, and the British Empire Cancer Campaign. No other remunerative work will be permitted during the tenure of the fellowship. Application forms for British-American Exchange Fellowships in Cancer Research may be procured from and submitted to Dr. O. M. Ray, Executive Secretary, Committee on Growth, Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

Public Health Association Meeting.—The annual meeting of the American Public Health Association will be held in San Francisco with headquarters at the Civic Auditorium, Oct. 29-Nov. 2 under the presidency of Dr. William P. Shepard, San Francisco. The 18th annual meeting of the Western Branch of the association and the annual meetings of 38 related organizations will be held at the same time in the auditorium and in the Palace and Whitcomb hotels. At the first general session Tuesday at 8:30 p. m. the John J. Sippy Memorial Lecture will be given by Gov. Earl Warren, California. Presentation will be made at this session of the Lasker Awards for outstanding achievements in public health. A special session will be held Wednesday beginning at 9:30 a. m. on "Aging Challenges Public Health." The speakers will be Dr. Joseph W. Mountin, Washington, D. C.; Murray B. Ferderber, Pittsburgh; and Mr. Joseph W. Willard and Dr. Clifford Kuh, Oakland, Calif. International Health will be discussed at the second general session Wednesday at 8:30 p. m. Dr. Brock Chisholm, director-general of the World Health Organization, Dr. Fred L. Soper, director of the Pan American Sanitary Bureau, Washington, D. C., and Chandra Mani of India will speak on the World Health Organization program. Plans for the formation of the United States National Citizens Committee for the World Health Organization will be announced at this session. This is one of many citizen's committees that are expected to be formed in various countries to increase the appreciation of the importance of international health programs. The Sedwick Memorial Medal will be presented Thursday evening at the annual banquet. Health films, scientific exhibits, and technical exhibits will supplement scientific sessions.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States in the weeks ended as indicated:

Area	Sept. 29, 1951	Sept. 22, 1951	Sept. 30, 1950
New England States			
Maine	2	2	12
New Hampshire	1	4	6
Vermont	5	2	1
Massachusetts	12	9	40
Rhode Island	..	1	4
Connecticut	20	14	31
Middle Atlantic States			
New York	97	121	331
New Jersey	20	41	68
Pennsylvania	60	64	118
East North Central States			
Ohio	64	89	159
Indiana	34	31	46
Illinois	111	116	139
Michigan	64	99	151
Wisconsin	94	151	61
West North Central States			
Minnesota	28	41	32
Iowa	23	34	86
Missouri	42	55	28
North Dakota	..	5	..
South Dakota	7	7	10
Nebraska	20	38	26
Kansas	40	58	27
South Atlantic States			
Delaware	..	..	3
Maryland	7	4	47
District of Columbia	3	1	14
Virginia	14	29	61
West Virginia	16	9	29
North Carolina	16	11	41
South Carolina	1	4	13
Georgia	29	24	24
Florida	4	4	12
East South Central States			
Kentucky	10	12	30
Tennessee	40	59	28
Alabama	27	24	6
Mississippi	37	59	7
West South Central States			
Arkansas	19	24	16
Louisiana	37	47	12
Oklahoma	19	33	18
Texas	66	73	92
Mountain States			
Montana	15	28	2
Idaho	2	6	13
Wyoming	14	9	..
Colorado	34	41	6
New Mexico	6	8	3
Arizona	3	14	5
Utah	27	26	9
Nevada	2	5	..
Pacific States			
Washington	32	30	41
Oregon	19	17	26
California	102	172	65
Territories and Possessions			
Alaska	2	5	11
Hawaii	..	..	..
United States	1,407	1,751	2,001

Note.—Iowa reported 22 delayed September cases—not allocated to specific weeks.

CORRECTION

Treatment of Migraine.—Dr. Caro W. Lippman writes that in his discussion of the paper "Recent Advances in Treatment of Migraine," by Friedman and von Storch, in THE JOURNAL, April 28, 1951, page 1328, where the words "estradiol benzoate" appear, the text should read "alpha-estradiol benzoate in sesame oil."

Life Insurance Research Grants.—In the news item in THE JOURNAL under this heading Sept. 29, page 519, the following sentence should be inserted after the word "grants" in the seventh line: "Applications for postdoctoral fellowships for training in research in 1952-1953 will also be received up to Nov. 1." The fund offers postdoctoral fellowships, which carry the stipend, and grants-in-aid of research.

V 14
1951

MEETINGS

AMERICAN MEDICAL ASSOCIATION CLINICAL SESSION, Los Angeles, Dec. 4-7. Dr. George F. Lull. 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Chicago, Oct. 14-18. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Toronto, Canada, Oct. 20-25. Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, The Seigniory, Montebello, Quebec, Canada, Oct. 23-25. Dr. Charles G. Johnston, 1512 St. Antoine St., Detroit 26, Secretary.

AMERICAN ASSOCIATION OF BLOOD BANKS, Hotel Nicollet, Minneapolis, Oct. 22-24. Miss Marjorie Saunders, 3301 Junius St., Dallas 1, Texas, Secretary.

AMERICAN CANCER SOCIETY, New York, Oct. 25. Dr. Charles S. Cameron, 47 Beaver St., New York, Medical Director.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, Skytop, Pa., Nov. 5-7. Dr. Marshall N. Fulton, 124 Waterman St., Providence, R. I., Secretary.

AMERICAN COLLEGE OF SURGEONS, Fairmont Hotel, San Francisco, Nov. 5-9. Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Secretary.

AMERICAN PUBLIC HEALTH ASSOCIATION, Civic Auditorium, San Francisco, Oct. 29-Nov. 2. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS, Chicago, Nov. 4-5. Dr. O. J. Pollak, Quincy City Hospital, Quincy 69, Mass., Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Washington, D. C., Nov. 5-8. Dr. J. Earl Remlinger Jr., 188 W. Randolph St., Room 909, Chicago 1, Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Chicago, Oct. 15-20. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis 7, Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE, Congress Hotel, Chicago, Nov. 15-17. Dr. Quentin M. Geiman, 25 Shattuck St., Boston 15, Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, French Lick Springs Hotel, French Lick, Ind., Oct. 29-31. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS, Washington, D. C., Nov. 26-30. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, Hotel Nicollet, Minneapolis, Oct. 19-20. Dr. Lee M. Eaton, 102 Second Ave. S.W., Rochester, Minn., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Nov. 2-3. Dr. Kenneth G. Kohlstaedt, 960 Locke St., Indianapolis 7, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Chicago, Oct. 15-16. Dr. Tracy B. Mallory, Massachusetts General Hospital, Boston, Secretary.

GULF COAST CLINICAL SOCIETY, Edgewater Gulf Hotel, Edgewater Park, Miss., Oct. 18-19. Dr. C. D. Taylor, 113 Davis Ave., Pass Christian, Miss., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, Indianapolis, Oct. 29-31. Miss Lucille Kribs, 23 E. Ohio St., Indianapolis 4, Acting Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, St. Louis, Oct. 22-26. Dr. Tom B. Throckmorton, Equitable Bldg., Des Moines, Iowa, Secretary.

NATIONAL ASSOCIATION OF CLINIC MANAGERS, Buena Vista Hotel, Biloxi, Miss., Oct. 29-31. Mr. Floyd R. Detert, Marshfield Clinic, Marshfield, Wis., Secretary.

NORTH PACIFIC SURGICAL ASSOCIATION, Vancouver, B. C., Canada, Nov. 16-17. Dr. J. A. Duncan, 509 Olive Way, Seattle, Wash., Secretary.

OKLAHOMA CITY CLINICAL SOCIETY, Biltmore Hotel, Oklahoma City, Oct. 29-Nov. 1. Mrs. Muriel R. Waller, 612 Medical Arts Bldg., Oklahoma City, Executive Secretary.

OMAHA MID-WEST CLINICAL SOCIETY, Hotel Paxton, Omaha, Oct. 29-Nov. 2 Dr. L. E. Moon, 1031 Medical Arts Bldg., Omaha 2, Secretary.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, Chicago, Dec. 3-7. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

SOUTHERN MEDICAL ASSOCIATION, Dallas, Texas, Nov. 5-8. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary

SOUTHERN SURGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Dec. 4-6. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, El Paso, Texas, Oct. 18-20. Dr. W. W. Schuessler, 1415 First National Bank Bldg., El Paso, Texas, Secretary.

WESTERN SURGICAL ASSOCATION, Broadmoor Hotel, Colorado Springs, Colo., Nov. 29-Dec. 1. Dr. Michael L. Mason, 154 E. Erie St., Chicago 11, Secretary.

INTERNATIONAL

AUSTRALASIAN MEDICAL CONGRESS, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Mexico City, Mexico, Jan. 6-12. Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4, D.F., Secretary-General.

PAN AMERICAN CONGRESS OF PEDIATRICS, Montevideo, Uruguay, Dec. 5-8. Dr. Maria Luisa Saldien de Rodriguez, Avenida 18 de Julio, 1246, Montevideo, Uruguay, General Secretary.

PAN PACIFIC SURGICAL ASSOCIATION CONGRESS, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 24-26, 1952. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

ARKANSAS:* *Regular.* Little Rock, Nov. 8-9. Sec., Dr Joe Verser, Harrisburg.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John K. Battenfield, Agana.

INDIANA: Indianapolis, June 1952. Sec., Dr. Paul R. Tindall, 1138 K of P Bldg., Indianapolis 4.

KANSAS: Topeka, Dec. 12-13. Sec., Dr. O. W. Davidson, 772 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 11-13. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville.

MARYLAND: *Examination.* Baltimore, Dec. 11-14. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

MINNESOTA: * Minneapolis, Oct. 16-18. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, Old Capitol Bldg., Jackson.

MISSOURI: *Examination.* Kansas City, Oct. 18-20. *Reciprocity.* Oct. 17. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

NEW JERSEY: *Examination.* Trenton, Oct. 16-19. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: *Examination.* Albany, Buffalo, New York and Syracuse, Oct. 31-Nov. 3. Sec., Dr. Jacob L. Lochner, Jr., 23 S. Pearl St., Albany.

OREGON:* *Reciprocity.* Portland, Oct. 12-13. *Examination.* Portland, Jan. 1952. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

SOUTH CAROLINA: *Reciprocity.* Columbia, Oct. 1. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

VIRGIN ISLANDS: Charlotte Amalie, Nov. 7-8. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: *Examination.* New Haven, Oct. 13. Exec. Asst., Miss Mary G. Reynolds, State Board of Healing Arts, 110 Whitney Avenue, New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 22-23. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

FLORIDA: Gainesville, Nov. 10. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

MICHIGAN: Detroit and Ann Arbor, Oct. 12-13. *Examination.* Sec., Miss Eloise LeBeau, 501 W. Michigan Ave., Lansing 15.

OREGON: *Examination.* Portland, Dec. 1. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

SOUTH DAKOTA: *Examination.* Vermillion, Dec. 7-8. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TEXAS: *Examination.* Austin, Oct. 19-20. Chief Clerk, Mr. B. H. Kirk, 306 Nalle Bldg., Austin.

---

* Basic Science Certificate required.

DEATHS

Hamilton, Samuel Warren ✙ Burlington, Vt.; born in Brandon, Vt., Aug. 21, 1878; Columbia University College of Physicians and Surgeons, New York, 1903; associated with the National Committee for Mental Hygiene (since September, 1950, the National Association for Mental Health) from 1916 until his death; an Associate Fellow of the American Medical Association; member of the Medical Society of the State of New York; life member and past president of the American Psychiatric Association; member of the American Psychopathological Association, of which he was president in 1938; member of the National Association for Mental Health; past president of the New York Society for Clinical Psychiatry; specialist certified by the American Board of Psychiatry and Neurology; psychiatrist for the U. S. Army during World War I; associate professor of psychiatry at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania from September, 1920, to July, 1924; at one time clinical professor of psychiatry at Women's Medical College of Pennsylvania, Philadelphia; served on the staffs of the Manhattan State Hospital in New York and the Utica (N. Y.) State Hospital; later director of the New York City Police Laboratory, medical director of the Philadelphia Hospital for Mental Diseases and assistant medical director of Bloomingdale Hospital, now the New York Hospital-Westchester Division, White Plains, and superintendent of the Essex County Overbrook Hospital in Cedar Grove, N. J.; at the time of his death was serving as consultant to the legislative commission investigating the needs of the Vermont State Hospital in Waterbury; in April of this year former Governor Youngdahl of Minnesota appointed him honorary commissioner of mental health; contributed many articles to lay and professional journals on mental hospital construction; in 1917, jointly with Mr. Roy Haber, revised the "Summaries of Laws Relating to the Commitment and Care of the Insane in the United States"; co-author of a book entitled "Mental Illness—A Guide for the Family," and of "Mental Hospital: A Guide for the Citizen"; died in Rutland July 27, aged 72, of coronary thrombosis.

Hatfield, Charles James, Philadelphia; born in Philadelphia Jan. 23, 1867; University of Pennsylvania Department of Medicine, Philadelphia, 1900; one of the original staff of the Henry Phipps Institute for the Study, Prevention and Cure of Tuberculosis in 1903, serving as executive director from 1910 to 1935 and from 1942 to 1946 and as associate director from 1935 to 1942 and from 1946 to 1948; president of the Pennsylvania Tuberculosis Society from 1907 to 1910 and later a director; in 1937 was awarded the Trudeau Medal of the National Tuberculosis Association, of which he was one of the founders in 1904, managing director from 1914 to 1922, president in 1924-1925, secretary from 1927 to 1948, and honorary vice-president; one of the founders of the International Union Against Tuberculosis in 1919 and in 1937 was appointed by Cordell Hull, then Secretary of State, to be a delegate at its 10th conference in Lisbon, Portugal; from 1919 to 1924 chairman of the Southeast Pennsylvania Chapter of the American Red Cross; president of the Philadelphia Tuberculosis and Health Association from 1923 to 1947, when he was made president emeritus; president of the Potts Memorial Institute from 1926 to 1948; member of the American Medical Association; chairman of the health department, Council of Social Agencies of Philadelphia, now known as the health division of the Health and Welfare Council, from 1938 to 1945; active for years in the work of the Whittier Center of Philadelphia; since 1921 life trustee of the University of Pennsylvania; received the honorary degree of doctor of science from Princeton (N. J.) University in June 1938; died in Pennsylvania Hospital Aug. 25, aged 84, of pneumonia.

Hassin, George Boris ✙ Chicago; born in Russia, Aug. 19, 1873; University of Kazan Faculty of Medicine, Russia, 1897; since Sept. 1, 1941, professor of neurology emeritus at the University of Illinois College of Medicine, where he was an instructor in nervous and mental diseases from 1909 to 1913, and associate professor of neurology from 1920 to 1926, when he became professor; Associate Fellow of the American Medical Association; member of the American Neurological Association, serving as vice-president in 1922, Chicago Neurological Association and in 1920 president, American Association of Neuropathologists of which he was one of the founders and its first president in 1934, Association for Research in Nervous and Mental Diseases, and the Central Neuropsychiatric Association; held honorary membership in the French Neurological Society and the American Academy of Neurology; served during World War I; at various times affiliated with the Edward Hines Jr. Hospital, United States Veterans Hospital, in Hines, Ill., Cook County Hospital, and the Research and Educational Hospitals; author of three editions of the textbook "Histopathology of the Central and Peripheral Nervous System"; founder and editor of the *Journal of Neuropathology and Clinical Neurology;* formerly editor of the *Journal of Neuropathology and Experimental Neurology;* died in the Illinois Neuropsychiatric Institute Aug. 15, aged 77, of cerebral hemorrhage.

✙ Indicates Fellow of the American Medical Association.

Pastore, John Baptist ✙ New York; born in Providence, R. I., June 5, 1905; Johns Hopkins University School of Medicine, Baltimore, 1931; assistant professor of clinical obstetrics and gynecology at Cornell University Medical College; lecturer on hospital administration at Columbia University School of Public Health and the Harvard University School of Public Health; member of the founders group of the American Board of Preventive Medicine and Public Health; member of the American Hospital Association, New York Heart Association, American Public Health Association, American College of Hospital Administrators, and the Medical Administrators Conference; member of the Health Resources Advisory Committee of the Office of Defense Mobilization and the National Advisory Committee on Selection of Doctors, Dentists and Allied Specialists; executive director of the Hospital Council of Greater New York; associate attending obstetrician and gynecologist, New York Hospital, where he had been assistant director; trustee for the Mount Vernon (N. Y.) Hospital; consultant, U. S. Public Health Service; died Aug. 18, aged 46, of coronary occlusion.

Croskey, John Welsh ✙ Fort Washington, Pa.; born in Philadelphia, Jan. 26, 1858; Medico-Chirurgical College of Philadelphia, 1889; an Associate Fellow of the American Medical Association; past president of the West Philadelphia Medical Association and the Alumni Association of the Medico-Chirurgical College; past president of the American Medical Golfing Association; served as secretary of the board of censors of the Philadelphia County Medical Society; formerly on the faculty of Temple University School of Medicine in Philadelphia, where he was affiliated with the Philadelphia General, Wills Eye, and Samaritan hospitals; served during World War I and in the U. S. Public Health Service; at one time editor and owner of the *International Medical Magazine* and publisher of the *Medico-Chirurgical Journal;* author of "Dictionary of Ophthalmic Terms," "History of Blockley," and "Anatomy and Physiology of the Eye and Its Appendages"; died July 30, aged 93, of coronary thrombosis and arteriosclerosis.

Morrison, Frederick McCulloch ✙ Lynchburg, Va.; born in Lynchburg, Va., July 30, 1904; University of Virginia Department of Medicine, Charlottesville, 1930; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; past president of the South Piedmont Medical Society; honorary president of the Virginia Society of Otolaryngology and Ophthalmology; served in the Medical Corps of the U. S. Naval Reserve during World War II; member of the school board; affiliated with Lynchburg General Hospital, Marshall Lodge Memorial Hospital, and Virginia Baptist Hospital; a director of the Lynchburg National Bank; died July 23, aged 46, of leukemia and chronic myocarditis.

V 14
1951

Alexander, Stephen C., New Albany, Ind.; Medical College of Indiana, Indianapolis, 1903; died July 27, aged 72.

Allen, Benjamin Franklin, Iowa City, Iowa; State University of Iowa College of Medicine, Iowa City, 1883; died June 15, aged 93, of carcinoma of the right breast and arteriosclerosis.

Anderson, Jens, King, Wis.; Western Reserve University Medical Department, Cleveland, 1909; died recently, aged 77, of acute myocarditis.

Anton, Francis L., ✠ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1899; fellow of the American College of Surgeons; on the staffs of the Queen of Angels Hospital and California Hospital, where he died July 30, aged 75, of coronary thrombosis.

Ayers, Lemuel DeLos, Ridgewood, N. J.; University of Buffalo School of Medicine, 1897; member of the American Medical Association and the Medical Society of the State of New York; died July 20, aged 78, of acute myocardial infarction, diabetes mellitus, and peptic ulcer.

Bell, Robert Graham ✠ Ottawa, Ill.; Rush Medical College, Chicago, 1920; member of the American College of Chest Physicians and the American Trudeau Society; for many years affiliated with Ottawa Tuberculosis Sanatorium; formerly medical director and superintendent of The Outlook in Champaign; at one time assistant medical director of the Oak Forest Tuberculosis Hospital in Oak Forest; died in Albert Merritt Billings Hospital, Chicago, July 28, aged 64, of myocardial infarction.

Berke, Philip Herman, Flushing, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1933; member of the American Medical Association and American Society of Anesthesiologists; chief anesthetist, Physicians Hospital in Jackson Heights; died July 29, aged 44.

Bonelli, Vincent, Vicksburg, Miss.; McGill University Faculty of Medicine, Montreal, Canada, 1906; affiliated with Vicksburg Infirmary and the Mississippi State Charity Hospital; died July 29, aged 71, of cerebral hemorrhage.

Brooke, George Carter ✠ Canton, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1915; member of the county board of health; served during World War I; died July 4, aged 59, of heart disease.

Brosseau, Jesse Edward, Argyle, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; died suddenly, June 11, aged 75, of coronary thrombosis.

Brown, Ralph Emerson, Barnwell, S. C.; Emory University School of Medicine, Atlanta, 1933; member of the American Medical Association; served during World War II; accidentally drowned in Savannah Beach, Ga., July 17, aged 46.

Campbell, Roy, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1922; member of the American Medical Association; died July 29, aged 56.

Cleaves, Prentiss Bowden, Cherokee, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; died June 6, aged 71, of myocarditis and cerebral thrombosis.

Clinger, Joseph Abram, Milton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; member of the American Medical Association; for many years bank president; died July 31, aged 72, of coronary thrombosis.

Cohn, Arthur H., Milwaukee; Milwaukee Medical College, 1896; also a graduate in pharmacy; chief surgeon of the city police department; on the staff of Mount Sinai Hospital; formerly on the faculty of his alma mater; died July 20, aged 86, of coronary occlusion.

Coons, John Jacob Jones ✠ Columbus, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1902; emeritus clinical professor of medicine at Ohio State University College of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Mount Carmel, White Cross, and Grant hospitals; died July 25, aged 77, of carcinoma.

Courrier, Ernest Adolph, Keyser, W. Va.; Chicago Medical School, 1917; member of the American Medical Association; formerly secretary of the Potomac Valley Medical Society; at one time practiced in Chicago, where he was assistant bacteriologist for the health department; formerly assistant medical examiner for the Baltimore and Ohio Railroad Company; for many years city health officer of Keyser; died June 8, aged 60, of coronary occlusion.

Del Baglivo, Emilio, Jersey City, N. J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1897; died July 25, aged 70, of acute coronary thrombosis.

Doms, Henry C. A. ✠ Slayton, Minn.; Kansas City (Mo.) Medical College, 1905; president of the Southwestern Minnesota Medical Association and of the Murray County Public Health Association; affiliated with Home Hospital; died in Murray County Memorial Hospital July 17, aged 71, of acute coronary thrombosis.

Donlan, Eugene Vincent ✠ Clinton, Iowa; Loyola University School of Medicine, Chicago, 1931; on the staff of St. Joseph Mercy Hospital, where he died July 3, aged 53, of coronary thrombosis.

Douglas, Thomas Edmund ✠ Seattle; Jefferson Medical College of Philadelphia, 1918; died July 19, aged 61, of coronary occlusion and cholelithiasis.

Embree, John W. ✠ Dallas, Texas; University and Bellevue Hospital Medical College, New York, 1899; died in St. Paul's Hospital July 26, aged 74, of cerebral hemorrhage.

Feeley, Joseph Bernard, McKeesport, Pa.; Medico-Chirurgical College of Philadelphia, 1905; member of the American Medical Association; on the consulting staff of McKeesport Hospital; died July 17, aged 71, of carcinoma of the stomach.

Fisher, Edward F., Dearborn, Mich.; Detroit College of Medicine, 1906; director of the Dearborn Department of Health and Recreation; many years Dearborn school trustee; served as village president and as councilman; for one term a member of the state legislature of Wyoming and a member of the state legislature of Michigan for many years; died in Spokane, Wash., July 24, aged 74, of acute coronary occlusion.

Galbraith, Biven Richard, New York; Baylor University College of Medicine, Dallas, Texas, 1929; served during World War II; died July 17, aged 47.

Gamble, Harold Scott, Headland, Ala.; University of Pennsylvania School of Medicine, Philadelphia, 1943; served during World War II; died June 22, aged 31.

Gilfillan, Homer John Sr., Bloomfield, Iowa; Keokuk (Ia.) Medical College, 1896; member of the American Medical Association; died July 14, aged 83, of coronary thrombosis.

Grace, Frank Gaines, Cincinnati; Northwestern University Medical School, Chicago, 1902; member of the American Medical Association; served during World War I; died July 17, aged 71, of coronary occlusion and hypertension.

Guthrey, Claud Simpson, Silver City, N. M.; University of Colorado School of Medicine, Denver, 1915; member of the American Medical Association and the American Association of Railway Surgeons; served as county health officer; surgeon for the Santa Fe Railroad; died July 28, aged 64, of congestive heart failure.

Harrell, David Lemuel, Suffolk, Va.; College of Physicians and Surgeons, Baltimore, 1895; died July 28, aged 79, of arteriosclerosis, hypertension, and diabetes mellitus.

Harrington, Charles Woodbury, Peterborough, N. H.; New York University Medical College, 1897; one of the founders of the Monadnock Community Hospital, died July 8, aged 76, of cerebral hemorrhage and diabetes mellitus.

Harris, Samuel Jacob, Boston (licensed in Massachusetts in 1896); died in Williamsburg, Va., July 11, aged 76, of cardiovascular renal disease and hypertension.

Harshbarger, Ward, St. Albans, W. Va.; Medical College of Virginia, Richmond, 1910; on the staff of McMillan Hospital; died in West Augusta, Va., July 20, aged 66, of cerebral hemorrhage.

147
951

Hatchette, Stakely Fonville ✠ Lake Charles, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1927; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology; served during World War II; died in St. Patrick's Hospital July 14, aged 49, of cerebral hemorrhage.

Hiltner, Walter Garfield ✠ Seattle; Harvard Medical School, Boston, 1908; formerly a medical missionary in China and Siberia; decorated by the Chinese government for his medical service to the Chinese; for many years medical director of the Northern Life Insurance Company; a trustee of Pacific University, Forest Grove, Ore.; died in Swedish Hospital July 29, aged 70, of coronary heart disease.

Hodges, Kenneth Prescott ✠ Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1932; served during World War II; member of the public relations committee of the Michigan State Medical Society and chairman of the public relations committee of the Ingham County Medical Society; chief of the department of general practice at St. Lawrence Hospital; died July 29, aged 43, of coronary thrombosis.

Horick, Edward Joseph ✠ Elmhurst, Ill.; Rush Medical College, Chicago, 1924; specialist certified by the American Board of Ophthalmology; on the staff of the Memorial Hospital of DuPage County; veteran of World War I; examining physician for local board No. 3, Selective Service, during World War II; died July 26, aged 57, of coronary occlusion.

Hume, Walter Fairbank ✠ Wai, Bombay Presidency, India; Columbia University College of Physicians and Surgeons, New York, 1916; an Affiliate Fellow of the American Medical Association; served during World War I; medical missionary for the American Board of Commissioners for Foreign Missions of the Congregational Christian Church; died in Baker Memorial Hospital, Boston, July 31, aged 61, of carcinoma of the thyroid.

Jackson, John H., Pleasantville, Ind.; Louisville (Ky.) Medical College, 1894; died in Mary Sherman Hospital, Sullivan, July 31, aged 85, of acute cholecystitis and pneumonia.

Johnson, Woodbridge Odlin, Los Angeles; University of Pennsylvania Department of Medicine, Philadelphia, 1895; formerly a medical missionary in Korea; died in Glendale (Calif.) Sanitarium; July 19, aged 82, of arteriosclerosis.

Johnston, Edmund Burke, Breckenridge, Minn.; Rush Medical College, Chicago, 1889; Jefferson Medical College of Philadelphia, 1892; died in West Union Community Hospital in West Union, Iowa, recently, aged 89, of cerebral hemorrhage and arteriosclerosis.

Jones, Oscar Olonel ✠ Shreveport, La.; Birmingham Medical College, 1914; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served during World War I; affiliated with Pines Sanatorium and Tri-State Hospital; died July 21, aged 69, of arteriosclerosis.

Jordan, Joseph Wiley, Ashland, Ala.; Atlanta Medical College, 1891; member of the American Medical Association; died July 18, aged 80, of cerebral arteriosclerosis.

Kemel, Richard Louis Joseph, Chicago; Université Catholique de Louvain Faculté de Médecine, Belgium, 1902; died in Alexian Brothers Hospital July 18, aged 75, of arteriosclerotic heart disease.

Killgore, James J., Wadley, Ala.; Memphis (Tenn.) Hospital Medical College, 1901; died July 17, aged 74, of carcinoma of the liver.

King, John Cephas, Radford, Va.; College of Physicians and Surgeons, Baltimore, 1893; member of the American Medical Association; a charter member of the Southwestern Virginia Medical Society; for many years superintendent of the Southwestern State Hospital in Marion; founder of St. Albans Sanatorium; died June 24, aged 80, of carcinoma of the pancreas.

Larkin, John Charles, Hillsboro, Ohio; Medical College of Ohio, Cincinnati, 1896; fellow of the American College of Surgeons; on the staff of Highlands Community Hospital; died in Christ Hospital, Cincinnati, recently, aged 82, of pneumonia.

Littlefield, George Curtis ✠ Webster, Mass.; Medical School of Maine, Portland, 1897; served as a member of the board of health; died June 13, aged 78.

McCullar, James Alexander, Sheffield, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; died June 8, aged 76, of cerebral hemorrhage and hypertensive cardiac disease.

Meigs, Stephen C., Centerville, Ala.; Medical College of Alabama, Mobile, 1902; member of the American Medical Association; past president of the Bibb County Medical Society; died in Birmingham July 4, aged 83, of hypertension and arteriosclerosis.

Mitchell, Gurney Talmage, Wilkesboro, N. C.; Jefferson Medical College of Philadelphia, 1927; member of the American Medical Association; died June 21, aged 53, of brain tumor.

Mori, Iga ✠ Honolulu, Hawaii; Cooper Medical College, San Francisco, 1891; served as superintendent of the Japanese Charity Hospital of Honolulu, now known as the Kuakini Hospital, where he died May 12, aged 87.

Murray, Vincent John, Glenshaw, Pa.; Marquette University School of Medicine, Milwaukee, 1938; member of the American Medical Association; affiliated with Allegheny General Hospital, where he died June 16, aged 40, of coronary disease.

Rieger, Walter Henry ✠ Cleveland; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; specialist certified by the American Board of Otolaryngology; affiliated with Fairview Park and St. Vincent Charity hospitals; died in Good Samaritan Hospital, Sandusky, June 27, aged 67.

Shacklette, Junius B., Louisville, Ky.; Kentucky University Medical Department, Louisville, 1906; member of the American Medical Association; died in Kentucky Baptist Hospital July 16, aged 69, of coronary thrombosis and diabetes mellitus.

Vander Clock, Cornelius ✠ Passaic, N. J.; Columbia University College of Physicians and Surgeons, New York, 1900; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served during World War I; since 1901 affiliated with Passaic General Hospital, where he had been chief of the surgical staff, member of the board of directors, and president emeritus of the medical staff; died in Passaic General Hospital July 10, aged 73, of coronary thrombosis and arteriosclerosis.

DIED WHILE IN MILITARY SERVICE

Hoot, Paul Monroe ✠ Captain, U. S. Navy, El Toro, Calif.; born in Geuda Springs, Kan., Sept. 29, 1905; University of Oklahoma School of Medicine, Oklahoma City, 1931; appointed an assistant surgeon with the rank of lieutenant (j.g.) medical corps, U. S. Navy on Nov. 18, 1931; served a one-year rotating internship at the Naval Hospital, San Diego, Calif.; on completion of his internship was assigned with the Civilian Conservation Corps; in 1936 ordered to the Asiatic Fleet and served aboard the gunboat *USS Guam* operating on the Yangtze River and later at the Naval Station, Olongapo, P. I.; returning to the United States, attended the Naval School of Aviation Medicine, Pensacola, Fla., and was designated a flight surgeon; during World War II served with various marine and naval air wings and naval air stations; following the war, served a residency in radiology at the Naval Hospital, San Diego; later attended a course in medical aspects of radiological defense at Duke University in Durham, N. C.; was assigned to the Armed Forces Special Weapons Project, Oak Ridge, Tenn.; at the time of his death was assigned to the Marine Corps Air Station, El Toro, Santa Ana; died in the Naval Hospital, Camp Joseph H. Pendleton, Oceanside, Calif., June 18, aged 45.

V 14
1951

GOVERNMENT SERVICES

AIR FORCE

Costs Cut Through Medical Unification.—Unification of the nation's military medical services is saving the American taxpayer millions of dollars in the Pacific theater, according to Dr. Gilbert H. Marquardt, assistant professor of medicine at Northwestern University Medical School, and one of 17 medical advisers to Maj. Gen. Harry G. Armstrong, Surgeon General of the Air Force.

Dr. Marquardt has just returned from a month-long, 23,000 mile flying tour of Air Force hospitals in Honolulu, the Philippine Islands, Okinawa, Formosa, Johnston Island, Kwajelin, Guam, Japan, and Alaska. The tour was made at the request of General Armstrong who keeps one medical adviser in the field to maintain high treatment standards in Air Force hospitals.

Under the new program, Dr. Marquardt said, the Army, Navy, and Air Force no longer duplicate medical facilities. Instead, the hospitals and medical personnel of all three services are available to any member of the United States forces. This procedure has contributed to top efficiency in the use of specialists and other physicians who are providing the best kind of care to American boys in the history of military medicine. The military prophylactic and preventive medical programs have proved effective in keeping the health of our troops at very high levels. The incidence of disease among our forces is about the same as that in civilian life, a remarkable achievement.

147
951

ATOMIC ENERGY COMMISSION

Study Commercial Isotope Production.—The Atomic Energy Commission has accepted two proposals for private firms to study, at their own expense, the commercial feasibility of manufacturing, processing, and selling radioisotopes. Contracts have been signed with Bendix Aviation Corporation of Detroit, Mich., and Tracerlab, Incorporated, of Boston, Mass. The long-range goal of the two projects is wider commercial use of radioisotopes. The first step will be to study the AEC's isotope processing program and to investigate the possibilities of building and operating reactors to produce radioisotopes. These contracts are in line with the commission's policy to encourage privately-financed groups to study the possibilities of taking over some segments of the atomic energy industry for commercial development. However, because of the urgency of the AEC expansion program, the commission is not able at this time to consider additional proposals for this type of investigation.

Twenty-Second Radioisotope Course Held.—Eighteen states were represented in the second of the three summer sessions of the radioisotope technique course, which was concluded on Aug. 3. This was the 22d session since the initiation of the radioisotope training program three years ago this summer.

So far, more than 700 scientists have been trained in the techniques of using radioisotopes in research by the Special Training Division. The majority have come from universities and medical schools, although hospitals and government and industrial research laboratories send a fair number of participants.

Drug House Sets Up Radioisotope Processing Unit.—A significant development in atomic medicine took place recently when Abbott Laboratories took over a building in Oak Ridge to serve as a center for processing radioisotopes into suitable medical compounds for hospitals and physicians throughout the country. The pharmaceutical firm is taking over a lease which runs through 1969. It is the first such business in any AEC community. Abbott expects to have the Oak Ridge processing center in operation very soon.

CIVIL DEFENSE ADMINISTRATION

Biological Warfare Film.—FCDA is making available to all television stations in the United States a kinescope film print, "What You Should Know About Biological Warfare." This film reproduces the Johns Hopkins University television program, "Science Review," broadcast over the Dumont Network on April 3. It is the first film of a television show to be so distributed by FCDA and establishes the pattern for future distribution.

First Aid Publications.—Five new official publications are being distributed by the Federal Civil Defense Administration to state, territorial, and local Civil Defense officials and the public. "Emergency Action to Save Lives," latest in the FCDA public information series, provides basic information for householders on how to care for injured persons until the arrival of organized first aid or medical help. A leaflet, "Civil Defense Household First-Aid Kit," is a reprint of the four center pages of "Emergency Action" and lists items for a home first-aid kit with brief instructions for their use. About 12 million copies of this leaflet and 6 million of "Emergency Action" are being distributed.

VETERANS ADMINISTRATION

Psychiatric Residencies Available.—Approved three-year residencies in psychiatry are available at the VA Hospital, Cleveland. These residencies are under the supervision of the department of psychiatry, Western Reserve University, School of Medicine. The first half of the program is given at the Veterans Administration Hospital and the last half at University Hospitals. The psychiatric training is psychoanalytically oriented. A one, two, or three-year training program may be arranged. Salary, depending on experience, ranges from $2,400 to $3,000 per year. Personal analysis and psychoanalytical training are available for qualified residents. For information, write to Leon Ross, M.D., Chief, Professional Services, VA Hospital, 7300 York Road, Cleveland 29, Ohio; or to Douglas D. Bond, M.D., Chairman, Deans Subcommittee for Psychiatry, Western Reserve University, Cleveland 6, Ohio.

Applications are invited by the Veterans Administration Hospital, Los Angeles, for an approved three-year residency in psychiatry affiliated with University of Southern California, College of Medical Evangelists, and University of California at Los Angeles. Inpatient and outpatient services include child psychiatry, psychosomatic medicine, and neurology. Residents are rotated through the Neuropsychiatric Hospital, General Medical and Surgical Hospital, Los Angeles County General Hospital, Juvenile Hall, and Mental Hygiene Clinic. Training is supervised by a competent staff of consultants, attendants, and lecturers. Opportunities for psychoanalytic training are available in Los Angeles. Applicants may address communications to Director of Professional Education, Neuropsychiatric Hospital, Veterans Administration Center, Los Angeles 25, Calif.

Residencies in psychiatry are available at the United States Veterans Administration Hospital, Hines, Ill., beginning Jan. 1, 1952, for a period of three years.

The residency program is under the direction of the Department of Psychiatry, University of Illinois. The hospital is within commuting distance of all other psychiatric facilities in the Chicago area. The training is fully accredited by the American Board of Psychiatry and Neurology.

Prosthetic and Sensory Aids Service.—The Veterans Administration has announced that it will establish two distribution centers to supply eligible veterans with hearing aid batteries and stump socks direct, cutting the time required for delivery from weeks to days.

When the centers go into operation, the veteran who has a VA-supplied hearing aid or artificial limb will simply drop a postage-free postal card into the mail and his fresh supply of batteries or stump socks, as the case may be, will be packaged and mailed to him by the distribution center for his area.

Under the new system, regional offices will send the initial postal cards to eligible veterans. These cards will be addressed to the distribution center handling the area where the veteran resides. After that, each package of fresh supplies will contain a postage-free postal card to be used by the veteran in submitting this next order.

The eastern center will go into operation Nov. 1, 1951, in Washington, D. C., and will serve veterans residing in states east of the Mississippi River. The Western Center at Denver, Colo., will start serving veterans who live west of the Mississippi on Jan. 2, 1952.

The Veteran's Administration's Prosthetic and Sensory Aids Service said the postage-free cards should be mailed by the veteran approximately 10 days before new batteries or stump socks are required. The Prosthetic Distribution Center will send the veteran an estimated three-months supply of the needed items.

A similar system will be used to furnish these items to eligible veterans temporarily residing in foreign countries.

Dr. Reilly Heads Radioisotope Unit.—Dr. William A. Reilly, Little Rock, Ark., formerly professor and head of the department of pediatrics, University of Arkansas, has been appointed director, Radioisotope Unit, VA hospital, Fort Miley, San Francisco, Calif. Dr. Reilly participated in some of the earliest investigational work on radioisotopes in clinical diagnosis prior to his serving as a colonel in the Medical Department of the United States Army from 1942 to 1946 (Africa, Italy, and France).

Medical Employees Exempted from VA Personnel Cut.—The Veterans Administration announced that about 5,000 employees would be dropped from the agency's payroll by Oct. 10, 1951, because of budget limitations contained in the VA's appropriation for the 1952 fiscal year. The appropriation measure, covering the period from July 1, 1951, to June 30, 1952, inclusive, was signed by the President Aug. 31.

The reduction will be nation-wide, and will include all administrative activities of VA. Excluded from the cut are Department of Medicine and Surgery personnel who staff the VA's 151 veterans' hospitals throughout the country.

Rehabilitation Conference.—A conference sponsored by the Physical Medicine and Rehabilitation Service on "Cooperative Relationships in Hospital and Post-Hospital Rehabilitation of Disabled Veterans" is to be held at the Veterans Administration Hospital, Hines, Ill., on Friday, Nov. 2. Outstanding individuals in the fields of rehabilitation will participate in the program. Physicians and other professional personnel are cordially invited. There will be no registration or other charge. Louis B. Newman, M.D., is chief of physical medicine and rehabilitation, at the VA Hospital in Hines.

New Hospital Managers.—Dr. Paul L. Eisele, chief of professional services at the Veterans Administration Hospital in Springfield, Mo., has been appointed manager of the VA hospital in Waukesha, Wis., succeeding Dr. Morris C. Thomas, who was named manager of the new VA Hospital at Madison, Wis.

To Build Hospital at Salisbury.—The Veterans Administration announced the award of a contract for construction of a 162-bed definitive-treatment hospital building at Salisbury, N. C., for neuropsychiatric patients suffering with tuberculosis. The structure, which will cost $2,314,244, is part of the 973-bed neuropsychiatric hospital under construction at Salisbury.

Medical Chief.—Dr. Leo J. Brennan, chief medical officer in the Boise regional office of the Veterans Administration, has been appointed chief medical officer for the VA Seattle regional office. He succeeds Dr. Howard H. Wolfe, who has been transferred to the San Francisco regional office.

PUBLIC HEALTH SERVICE

Research Fellowships Awarded.—One hundred seventy-one medical research scholars in 71 different schools and institutions throughout the country have been awarded Public Health Service research fellowships to aid them in continuing their studies and research. The recently approved fellowships total $445,300. With the aid of these fellowships and those awarded earlier in the year, more than 500 scholars are now actively pursuing clinical and basic research studies in such fields as cancer, heart and mental disease, arthritis and the metabolic diseases, diseases caused by micro-organisms, and various dental disorders. During the past five years of this program's existence, almost 1,400 research fellowships have been awarded to the most promising scholars in the fields of medical and related research. Applicants are screened by the Fellowship Boards of the National Institutes of Health, which make recommendations to the Surgeon General. Fellows receive fixed stipends, depending on the degree they hold. Those with a bachelor's degree receive $1,200 yearly, plus $400 for dependents. Those with a master's degree receive $1,600 yearly, plus $600 for dependents. Additional funds are made available where necessary for tuition, special equipment, or travel.

Federal Security Agency Appropriations.—The President signed into law on Aug. 31, the 1952 fiscal year appropriation bill for the Federal Security Agency (P. L. 134). Below are listed certain health items of interest to the medical profession:

Federal Security Agency Appropriations

	Funds Available for Fiscal Year 1951	Funds Requested for Fiscal Year 1952	Funds Voted for Fiscal Year 1952
Venereal diseases	$ 12,863,500	$ 11,800,000	$ 11,653,360
Tuberculosis	9,400,000	9,000,000	8,745,000
General public health	16,084,000	16,084,000	15,960,000
Communicable diseases	6,260,000	6,150,000	5,915,747
Sanitation and industrial hygiene	3,670,030	3,800,000	3,648,158
Hospital construction grants (new)	85,000,000	75,000,000	82,500,000
Hospital construction (liquidation of authorized projects)	110,000,000	120,000,000	100,000,000
Hospitals and medical care (operation)	29,024,000	30,200,000	30,200,000
National Institutes of Health	13,913,900	15,800,000	15,500,000
National Cancer Institute	19,880,000	19,947,000	19,500,000
Mental health activities	9,565,000	10,800,000	9,518,987
National Heart Institute	14,554,400	10,150,000	10,000,000
Dental health activities	1,954,850	1,750,000	1,598,654
Construction of Clinical Center, Bethesda, Md.	15,125,000	18,590,000	17,685,540
Vocational Rehabilitation — payments to states	20,600,000	23,000,000	21,500,000
Children's Bureau — grants to states	30,250,000	33,000,000	31,500,000
Public Assistance grants — old-age, blind, disabled, and others	1,280,000,000	1,300,000,000	1,150,000,000

Statistics on Group Practice.—A comprehensive résumé of medical group practice in the United States during 1946-1947 has been issued by the Public Health Service. In addition to summarizing seven articles on medical group practice which were based on Public Health Service research, *Medical Group Practice in the United States* by G. Halsey Hunt, M.D., and Marcus S. Goldstein, Ph.D., includes new material on fees and work load of physicians in group practice. Descriptive examples of the organization and income distribution in typical medical groups are given in an appendix. Most of the statistical material reported in the summary was obtained by (1) a questionnaire survey of all listed groups in the United States in 1946; (2) an intensive study of 22 selected medical groups; and (3) brief visits to some 80 such groups by a Public Health Service study unit. The summary also discusses quantitative data on the following: development of group practice in this country; personnel and assets; income; prepayment plans in medical groups; and the "vital statistics" of group practice. Preparation of the summary was initiated at the request of the Brookings Institution to provide background material for a section on group practice in a forthcoming volume on availability of health services in the United States. Copies of the report (P. H. S. Publication No. 77) may be obtained for 25 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. A limited number are available without charge from the Public Health Service.

V 14
1951

FOREIGN LETTERS

LONDON

Kingston Hospital Dispute.—For almost two years a controversy has raged regarding the future control of a local family doctor hospital at Kingston by the central controlling authority. This example of the evils of bureaucratic central control, although only one of many, has been fought with such vigor by the local family doctors that the Kingston Victoria Hospital has already become legendary in the Health Service.

The district of Kingston-upon-Thames is one of the outer suburbs of London and has a population of nearly a quarter of a million. The Kingston and Malden Victoria Hospital opened in 1898 on land donated by the Duke of Cambridge. For 50 years, local family doctors have used this hospital for the treatment of their patients. Any doctor in established practice in the area could become a member of the staff, and many availed themselves of the privilege. Daily care of patients has always remained in the hands of the family doctors in close association with consultants and specialists who were elected members of the staff. This association has helped to maintain a high standard of practice among the family doctors, higher, in fact, than if they had had no such hospital. It is this standard that doctors were most anxious to preserve.

The hospital had 44 beds, all of which, with the exception of 12 beds in the children's ward, were situated on the ground floor, thus facilitating administrative and nursing work. The hospital had a fully equipped operating theater and a modern diagnostic x-ray plant.

Acute and chronic cases of all kinds were dealt with in the hospital, primarily by the family doctor, but under the supervision of an appropriate specialist when the case warranted it. All surgery was done by consultants, the postoperative care resting in the hands of the family doctor under instructions from the operator.

Although the number of beds was small, the turnover of patients, especially the surgical, was large. For instance, there were over 890 admissions in 1949, and over 1,500 outpatients of all types, including general medical and surgical. Nearly 800 operations were performed, and the radiological department made almost 6,500 examinations.

Such was the picture of this small family-doctor hospital, working at its top capacity, fulfilling a real need of the local inhabitants, and providing first-class modern treatment.

With the advent of the National Health Service Act, in July, 1948, the whole of the southwest metropolitan region, which extends from Hyde Park Corner in the center of London, southward to the south coast and southwest and west for a distance of about 120 miles, including parts of Dorset, became the central controlling body of this enormous area, including several hospitals in the Kingston area grouped together as the Kingston Group Hospital Management Committee. Shortly after this, trouble began.

In May, 1949, the Regional Hospital Board sent a Review Committee, consisting of Mr. N. F. Adeney, a surgeon of Bournemouth, Dr. J. C. Prestwich, a physician of Southsea, and Dr. Stark Murray, a pathologist of the larger Kingston County Hospital, for the purpose of looking into the medical staff and establishment of the Kingston Victoria Hospital. In August, 1949, the Kingston Group Hospital Management Committee received from the Regional Board devastating recommendations made by the Review Committee.

In spite of the fact that statistics showed a great increase in all branches of the work done by the Kingston Victoria Hospital since the introduction of the Health Service, and also that this hospital was run more economically than any other hospital in the Kingston Group, the Committee recommended that the maternity and gynecological unit at the Kingston County Hospital become a group unit by incorporating the Kingston Victoria Hospital into it, that other maternity beds in the area should be closed, and that some gynecological beds be dispensed with once the unit, to consist of 110 beds, had been organized and an additional intern had been employed.

This meant that the Kingston Victoria Hospital would no longer be available for use by family doctors for the treatment of their patients and all contacts between family doctors and specialists and consultants at the bedside, in the outpatient department and in the operating theaters, would cease.

About this time, the question of the future of the Kingston Victoria Hospital began to appear in the local press. On Nov. 3, 1949, an enlightening letter was published, in which the writer pointed out that, although the Regional Board claimed that the State Hospital Service was being run by doctors, the doctors in question were not those most nearly concerned, for there are no family doctors on either the Kingston Group Hospital Management Committee or the South West Metropolitan Regional Hospital Board. The writer thought this was most unfortunate, as it involved both the evil of centralized planning and the evil of inadequate representation of the family doctor, the latter being deliberately frozen out of the hospital service.

The Hospital Management Committee strongly recommended to the Regional Board the building of a 100-bed maternity unit in the grounds of the Kingston Hospital, plus accommodation for the necessary staff. Plans for this building had been completed in 1939 and were still in existence, the project having been only temporarily abandoned owing to the outbreak of war.

The Regional Board rejected this proposal and stressed that the change of the Kingston Victoria Hospital to a gynecological unit was an essential part of the Review Committee's proposal. The Regional Board pointed out that the greatest need in the Kingston Group of hospitals was for an increase in maternity beds.

Both the Kingston and the Malden Borough Councils wrote to the Regional Board asking that they be consulted before further action was taken. They received no reply to their letters.

Mr. John Boyd Carpenter, Conservative Member of Parliament for Kingston-upon-Thames, was apprised of the relevant facts, with a view to his approaching the Ministry of Health in the matter. In October, 1949, a Ministry of Health circular was issued (published in the *British Medical Journal*) emphatically denying that the Ministry was in favor of closing the general practitioner hospitals or of altering the usage of established hospitals without full consultation and agreement of all accounts.

From various letters and statements that appeared in the local press at this time, it was apparent that the public was becoming more and more concerned, especially as the press was refused admission to the overriding Committee's discussions.

On Nov. 22, 1950, the largest hall in the locality was filled to capacity by 1,500 persons, and some hundreds heard the speeches in the street, as a demonstration of protest against the decision of the South West Metropolitan Regional Hospital Board to change the use of the Kingston Victoria Hospital. The mayor of Kingston presided, accompanied by the mayors of Malden and Norbiton. The chairman briefly reviewed the situation. Mr. J. Boyd Carpenter, M.P. for Kingston, having disclaimed any intention of making political capital out of the situation or expressing any hostility to the Health Service, pointed out that the chairman of the Kingston Group Hospital Committee and three of his colleagues who had been opposed to the Regional Board's decision had been removed and others substituted. This Regional Board was not responsible to the House of Commons or to the county council or local borough councils, nor was it elected by anybody. It was, he said, like old corporations that had "neither a body to be kicked nor a soul to be saved." The public, he continued, was stirred by the picture of a small institution struggling for survival, and still more by the dictatorial powers of the

The items in these letters are contributed by regular correspondents in the various foreign countries.

hospital boards. It was in small hospitals of this sort that patients could see the familiar face of their family doctor and receive treatment from him. Mr. Boyd Carpenter paid tribute to the courage of those who, in defiance of authority, were carrying on, some of them jeopardizing their professional lives. He hoped that full local powers would not be exercised by those in authority, adding that they would not be lightly forgiven by the public of the surrounding districts if they did so. He concluded by saying that the British Medical Association had suggested a way out, that is, to let the present position continue for a year while a public inquiry was held, thus giving feelings a chance to cool and a chance for new working arrangements to be made.

Brigadier Skentelbery, chairman of the hospital, said that the press had called this a rebel hospital, but the real rebels were the Regional Board. He pointed out that local loyalties, which hospitals like the Kingston Victoria Hospital commanded, could not be ignored in any reorganization. On the Regional Board there was only one general practitioner, and on the Kingston Group Management Committee there was no general practitioner at all.

Dr. T. W. Morgan, chairman of the honorary medical staff of the hospital, said that the Regional Board appointed a Review Committee to examine the needs of the region. The committee was told by several of the staff of the Victoria Hospital that the greatest need was more beds. There were only 700 to 800 beds for sick in the whole group, covering a population of about 230,000. The number should be in the region of 17,000 beds; the need for extra beds is in every specialty, not only in gynecology. Dr. Morgan warned the public of Kingston that, if this hospital were transferred to another use and closed to the general practitioners, it would mean that the ability of general practitioners to serve their patients would be diminished; they would tend to become mere sorting officers, rather than physicians.

Mr. Lawrence Abel, a London surgeon, declared that the family doctor associated with such a hospital was much better than the one who never entered a hospital after he qualified. It was, he said, of enormous benefit to patients, when seriously ill, to have their own doctor look after them in hospital. He described the action of the Regional Board as "bureaucracy gone mad."

In spite of numerous protests to the Ministry of Health and in Parliament, and to the Minister, the bureaucratic heeding has been upheld and the local family doctors have been deprived of their hospital. Great indignation is felt, not only locally, but throughout the whole country.

The London *Times,* June 2, 1951, reported a plan by the former medical staff and management committee of the Kingston Victoria Hospital to form a new hospital in place of their former one.

On June 1, the Doctors' Action Committee announced the formation of a new body, similar to the former Kingston Medical Foundation, which will form a trust and be registered as a charity and will make a national appeal for $140,000 (£50,000). It is intended with this sum to equip and run the new Kingston Victoria Hospital for two years. The Action Committee reported having seen several examples of houses in the Kingston area, one especially, that with little alteration would be suitable for a 15 or 20-bed hospital. No notice has so far been given to the Ministry of Health, but eventually it would have to be asked to approve the new premises as fit to receive patients.

In the proposed hospital, treatment would be free and the doctors would give their services free. It would inevitably be a little hospital, but, as the article states, it would represent a big principle; namely, that hospitals should exist where family doctors and specialists could work in harmony for the benefit of their patients.

Dr. E. C. Warner, a London and Kingston consultant, stated that Kingston Victoria Hospital had been a first-class hospital, staffed by local practitioners of high standing and qualifications. These men had been thrown out of their hospital to make a good plan on paper. The family-doctor hospital was being destroyed, whereas it should be kept, if only because of the first-class postgraduate instruction that the attending family doctor received every day he was in attendance there. The new Management Committee is meeting again within the next few days and its president hopes that the new hospital will be ready for its first patients in a few months.

PARIS

Acute Hypervitaminosis A.—The chronic toxicity provoked by prolonged administration of vitamin A is now classic, but the acute toxicity from the same source is little known. J. Marie and G. Sée observed within one year four infants who showed acute benign hydrocephalus with considerable bulging of the fontanel within 24 to 48 hours after a single massive dose of vitamins A and D. These infants, previously in good health, suddenly began to vomit, and drowsiness, pallor, and diarrhea occurred. Temperature remained normal. Clinical examination revealed only the bulging of the fontanel, which raised the integument and could be noticed even when the child was sitting up. Lumbar puncture yielded normal fluid. Within 24 to 48 hours the children's condition became normal.

In three babies, aged 3 months, 3½ months, and 7½ months, this accident occurred after they had received a drug containing 350,000 units of vitamin A and 300,000 units of vitamin D with their food. The fourth was a six-month old baby, who had been treated for rhinopharyngitis with nasal instillations of a drug containing 50,000 units of vitamin A and a very small dose of vitamin D, the total dose in six days being 300,000 units of vitamin A. Later, a similar accident occurred after the absorption of half an ampul of a drug equivalent to 175,000 units of vitamin A and 150,000 units of vitamin D. The authors ascribe these accidents entirely to acute hypervitaminosis A, since vitamin D intoxication offers clinical signs different from those observed. As to the real mechanism of these hydrocephalus phenomena, the authors consider the simple modification of cerebral spinal fluid pressure under vasomotor influences, the sudden hypersecretion of fluid by the choroid plexus, or the lack of resorption of this fluid by ependymal cells. In their communication to the Society for Pediatrics, the authors emphasized the danger of administering enormous doses of vitamins to an infant.

Chaulmoogra Oil in Pulmonary Tuberculosis.—Minet, Warenbourg, and associates presented to the Société de Médecine du Nord a study on the action of chaulmoogra oil in 20 cases of cavernous tuberculosis, in which previous treatment with streptomycin and paraaminosalicylic acid, given alone or in combination, did not prevent progression of the disease. They noted a constant action on general condition and appetite; the radiologic picture was favorably modified in 70% of cases. Chaulmoogra oil proved to be without toxicity.

Minet, Linquette, and Desruelles also reported their results with this drug in 20 cases, among which were two of severe bilateral disease in which antibiotic treatment alone had failed. In four cases improvement of the radiologic image and the general condition was spectacular; in nine cases in which antibiotics and chaumoogra oil were used from the start, results were very favorable, and in seven cases results were poor.

New Method for Carbon Dioxide Determination.—R. Fabre, R. Truhaut, and J. Berrod reported at the June 6, 1951, meeting of the Academy of Pharmacy, a new and simpler method for the determination of the blood carbon dioxide. Only a few cubic centimeters of blood are needed, and it is of great interest for the study of industrial carbon dioxide intoxication. Blood gases are displaced with dilute sulfuric acid, and the escaping carbon dioxide is gathered by microdiffusion in a palladium solution. After separation, reduced palladium is complexed with alpha-nitroso-beta-naphthol, and the complex is dissolved in pyridine. The determination is performed with a photometer.

Pulmonary Valvotomy.—P. Soulié, M. Servelle, and associates reported the first French pulmonary valvotomies, performed in four cases of Fallot's triad characterized by diaphragmatic valvular stenosis, interauricular communication, and cyanosis. The authors were taught the method by R. C. Brooks of London. Among the four cases they mention especially a 13-year-old child, who, besides significant growth retardation, had dyspnea and cyanosis on the slightest effort. Electrocardiographs revealed extreme right axis deviation, a high right ventricular pressure (150/5 mm. Hg) but low pressure in the pulmonary artery (10/5); a right to left unidirectional shunt, an interauricular but no intraventricular communication. The pulmonary output fell to 2,280 liters. At operation, valvular stenosis and a thrill at every systole were noted. Results of valvotomy were excellent, and three weeks

V 14
1951

later there was complete disappearance of cyanosis, diminution of dyspnea, appearance of systolic humming-top murmur in the mesocardiac area, inversion of the shunt, which became bi-directional, with left to right predominance, drop in intraventricular pressure to 120/5 mm. Hg and increase in pressure in the pulmonary artery to 30/15 mm. Hg. The pulmonary output reached 5.90 liters.

In their communication to the Medical Society of the Paris Hospitals of April 6, 1951, the authors stressed the necessity of differentiation of trial and tetrad by means of intracardiac catheterization and angiocardiography. Operation should be performed as soon as possible, preferably during infancy, especially if right intraventricular pressure exceeds 100 mm. Hg. As cyanosis occurs late in Fallot's triad, although the right ventricular pressure is 200/5 mm. Hg, parents will not always consent to the intervention. The authors believe that valvotomy is the only logical and effective treatment indicated in Fallot's triad, in which Blalock-Taussig's anastomosis, the treatment of choice for tetrad, is contraindicated. Valvotomy might be tried only in the very rare cases of infundicular stenosis with pronounced aortic dextroposition, in which anastomosis cannot succeed.

Tissular Therapeutics in Stomatology and Otology.—Pyorrhea, often of unknown origin, is resistant to all treatments now in use. Chatelier and Foussadier presented to the French Society for Stomatology their first results of treatment of patients with far-advanced disease with preserved implants of placenta. Fifteen days after the graft, there was alleviation of pain, partial or total consolidation of mobile teeth, and disappearance of deep-seated, purulent foci of infection in gingival regions. The general condition improved at the same time. Chatelier is considering the use of fresh implants or of tissular extracts. Moreover, F. Baron and Mme. Moreau-Gouy, in the *Gazette Médicale de France*, report improvement, by tissular therapy, in functional disorders such as tinnitus and vertigo. They stress that this treatment should be tried before section of the vestibular nerve or labyrinth trepanation.

Chronic Alcoholism.—Raoul Lecocq has studied the role of disturbances of alcohol metabolism in causing the polyneuritis and delirium of chronic alcoholism. His research revealed that pyruvic acid is the offending agent when alcohol metabolism is gravely disturbed. The injection of nicotinamide-adenine prevents these effects; thiamine, even in larger doses, is less active. In chronic alcoholics, the presence of pyruvic acid explains acidosis, delirium tremens, polyneuritis, and even the intolerance to alcohol following the administration of tetraethylthiuram disulfide, a mechanism previously not understood. Pyruvic acid also provokes the characteristic craving for alcohol.

SWITZERLAND

Fourth World Health Assembly.—The Fourth World Health Assembly was held May 7-25, 1951, in Geneva. The opening session was presided over by the Rajkumari Amrit Kaur, minister of health of India and president of the First World Health Assembly. In this opening session, about 70 members states of the World Health Organization were present.

In her opening address, Mrs. Armit Kaur emphasized the important work that WHO has to undertake in order to aid underdeveloped countries.

Dr. Leonard Scheele, United States Surgeon General and chief of the American Delegation, was elected president of the Fourth World Health Assembly. In his address he outlined WHO's role in improving health conditions throughout the world and pledged the unstinting support of his country toward the achievement of WHO objectives. Dr. Scheele declared that, in accepting the office conferred on him, he interpreted the Assembly's confidence as being placed not in him personally but in his country. "We do believe that improvement of health in all parts of the world is one of the main roads to peace. . . . We are all aware that we are dealing with the total public health problems of the world at this Assembly and are not merely deciding on the budget of an organization limited to spend a few million dollars each year. . . . Almost every piece of work the WHO undertakes is a demonstration to be followed by work performed by others. Its influence for better health is felt even where no WHO team has ever gone. . . . I can give you a concrete example. WHO is one of the principal pioneers of malaria control through DDT residual spraying. Today, although 1½ million people are being protected against malaria through this means of international action, the total number of people now protected against malaria by DDT residual spraying is more than 50 million. . . . Thus, the direct action of WHO, through international administration, has inspired similar action by individual countries 33 times greater, and there can be little doubt that this is only a beginning. . . . WHO's real mission is to help others to help themselves on a firm and lasting basis. It must never take them a stereotyped program.

"During the past few decades, science has forged powerful new health tools, which, for the first time, make it possible to free the whole world of many major diseases. WHO and the concept of full international collaboration in health are not very old in time, but WHO is already pointing the way and making major progress in bringing the new techniques to all the countries of the world.

"Given time, our efforts in WHO have a chance to help prevent suffering and strife and to bring health and happiness to the world's people."

After Dr. Scheele's address, the Assembly, on a motion from Dr. Camilio Fabini (Uruguay), stood for a moment of silence to honor the memory of the founder of the Red Cross, Henri Dunant, who was born in Geneva exactly 123 years ago, on May 8, 1828.

It was also decided unanimously that Cambodia, Laos, and Viet-Nam should be included in the Western Pacific Region.

During this first meeting, the chairman gave the Leon Bernard Prize to Dr. René Sand (Belgium), whose work in social medicine is known throughout the world. This prize, which consists of a gold medal and 1,000 Swiss francs, had not been awarded since 1939. In his answer, Dr. Sand emphasized that the conceptions of social medicine had found their complete expression in WHO's constitution and activity. Dr. Sand pointed out that health essentially depends on environment and on national and international economy. Social medicine, he said, does not yet occupy its rightful place. Medicine should be largely prophylactic, preventing illness.

Dr. Brock Chisholm, director-general of the World Health Organization, read his report on the organization's activity in 1950. About 100 countries received direct assistance, and extensive technical aid was given to all the countries of the world in order to fight epidemics.

New regional agencies of WHO have been created for the Pacific and Africa. Dr. Chisholm said that the decision to leave WHO taken by USSR, China, Albania, Rumania, Hungary, Czechoslovakia, Poland, and other countries is likely to have a bad influence on the program of the World Health Organization.

The delegates adopted the internation sanitary regulations of WHO, which unifies and replaces the numerous international conventions against the propagation of various infectious diseases, as plague, cholera, yellow fever, typhus, relapsing fever, and smallpox. From Oct. 15, 1952, this regulation will be obligatory for all states and associate members of WHO. In this regulation, the scientific progress in the realm of epidemiology and of modern techniques of prevention is secured. It suppresses as far as possible, all restrictions to international traffic and journeys. The vaccination certificates have been simplified. According to Dr. Scheele, chairman of the Assembly, the adoption of this new regulation is the greatest improvement that has ever been accomplished.

These activities will be financed by WHO's budget as well as by the United Nation's program for technical assistance for economic development and by UNICEF.

The Assembly decided to continue to send sanitary teams to Korea to help the population. Turkey decided to return to WHO $35,000 of the $55,000 given last winter by WHO's executive committee for medical aid to Turkish refugees from Bulgaria. Since the situation had improved, the Turkish government thought that the money could be used by WHO for more urgent cases.

Japan, Western Germany, and Spain were admitted as members of WHO.

The Assembly approved the director-general's proposed budget of $7,700,000 for 1952.

COLOMBIA

Phlebosclerosis of Varicose Veins of Lower Extremities.—Prof. Santiago Triana Cortés has reported a new surgical procedure for the treatment of varicose veins in *Repertorio de Medicina y Cirugía* (6:23 [Dec. 1] 1950). The experiments were performed at the Laboratory of Experimental Surgery of the Faculty of Medicine of the National University. The clinical cases were observed at the Hospital San José of the Society of Surgery of Bogotá. The technique is simple and can be performed by every surgeon. There is no danger of infection or embolism. Many patients followed over a long period showed significant benefit from this operation. According to the author, it solves the problem of rational treatment of varicose veins of the lower extremities.

The intervention is based on the exclusion of superficial venous circulation in the region of either the internal or the external saphenous vein or both, by means of phlebosclerosis obtained by introducing an aseptic thread into the lumen of the vein involved by the disease. The venous trunk thus treated undergoes a process of thrombosis, which is limited by section and ligation of the vein in its distal and proximal portions. A clot is formed in the connective tissue and afterward in the fibrous tissue, causing total phlebosclerosis without phlebitis and periphlebitis, which always accompany the other procedures of venous sclerosis.

The procedure consists in an incision 2 cm. long in the upper part of Scarpa's triangle to the arch of the internal saphenous vein. The trunk of the vein is then isolated near the arch. The vein is then ligated and sectioned beneath the ligature. A metallic stem is then introduced into the sectioned vein and is pushed along the venous trunk until it reaches the origin of the internal saphenous vein, which is approximately 2 cm. outside the inner malleolus. At this site, a contraincision 1 cm. long is made, the distal portion of the vein is ligated, and the second section of the vessel is done above the ligature. The metallic stem is pushed until its end appears at the site of the section at the terminal part of the vessel. A thread of sterilized cotton is fixed at the extremity of the stem, which is then withdrawn through the upper opening. The stem pulls the thread, which is to remain inside the venous trunk. The distal and proximal parts of the treated vessel are then ligated, and the small incisions of the skin are closed.

Meeting of Gastroenterologists.—The Third National Convention of Gastroenterology was held in Bucaramanga, June 7-9, 1951, under the chairmanship of Prof. Ignacio Vélez Escobar. Sixty physicians, delegates from nine cities, were present. Major surgical operations were performed by surgeons of Bogotá, Medellín, and Cali at the hospitals of Bucaramanga. A short postgraduate course on endoscopy was given. Anatomic specimens were on display, and medical motion pictures were shown. During the sessions, a volume of selected works by national authors dealing with diseases of the digestive tract, published by the National Association of Gastroenterology, was shown to the public. Cartagena was chosen for the seat of the next convention on gastroenterology, to be held in 1952. Peptic ulcer was selected as the official topic for the coming meeting. In the closing session the following new board of directors of the National Association of Gastroenterology was elected: Prof. Alfonso Bonilla Naar of Bogotá, president; Prof. Juan Di Doménico of Bogotá, vicepresident; Dr. Carlos Camacho of Bogotá, secretary; Prof. Arturo Campo Posada of Bogotá, treasurer, and Luis Enrique Plata Esguerra, librarian. Other members are Drs. Ignacio Vélez Escobar and Hernando Velásquez.

National Congress on Tuberculosis.—The Fifth National Congress on Tuberculosis was held in Medellín, June 17-24. Distinguished Colombian phthisiologists and foreign scientists from Ecuador, Chile, Venezuela, Panamá, Uruguay, Perú, and Argentina participated. Treatment of tuberculosis with antibiotics, and vaccination against tuberculosis were the chief official topics of the meeting. Of special interest was the work reported on by Dr. Raúl Vacarezza of Buenos Aires, and by Drs. Alfonso Mejía Calad, Eduardo Abad Mesa, Gumersindo Sayago, Cleopatra Epifanio, Edmundo Medina Mejía, Guillermo Ballesteros, Abelardo Rodríguez, Aristeo Piaggio, Alejandro A. Artagaveytia, Ovidio García Rosell, and Amadeo Vicente Mastelari.

The following conclusions were drawn in the closing session: 1. No change need be made in the conclusions reached in the last congresses of phthisiology concerning the indications of streptomycin therapy in tuberculosis. In the treatment of pulmonary tuberculosis in particular, streptomycin and the new therapeutic agents of similar action are drugs of coadjuvant action combined with the classic therapeutic methods. 2. Streptomycin should not be used indiscriminately, because it causes streptomycin resistance. 3. Experience shows that to lengthen the useful period of streptomycin therapy, it should be administered simultaneously with another drug having a bacteriostatic action against tubercle bacilli, such as paraaminosalicylic acid. 4. Amithiozone (TB-1) has proved so far to be less effective and more toxic than other agents. It should be remembered that experiments with amithiozone are not sufficiently numerous to permit a definite conclusion concerning its indications and results.

The congress also approved the following declaration: "The National Conference on Tuberculosis states that BCG vaccination against tuberculosis has proved innocuous and highly effective in prophylaxis of tuberculosis. Consequently, it should be integrated into the campaign against tuberculosis combined with other methods of prevention that have proved useful. Infants and allergic persons should also be included in the campaign of prophylaxis.

MEXICO

Cortisone Produced from Tropical Plants in Mexico.—Progesterone, testosterone, and other steroid hormones are synthesized in Mexico utilizing as source material wild tropical plants of the family Dioscoraceas, which are very abundant on the coast of the Gulf of Mexico.

In July, 1951, after a two-year study, it was announced that synthesis of the hormone was at last accomplished without animal products. It is expected that the world supply of cortisone will be unlimited by the end of 1952 and that its cost will diminish as the production increases.

Kala-Azar in Mexico.—Kala-azar is known to occur in Brazil, Argentina, and in Venezuela. The dog and some wild animals, such as the squirrel, constitute a natural reservoir, and an insect genus Phlebotomus, which lives in tropical and humid areas, is the vector. Although these conditions exist in some southern areas of Mexico, and although the disease was reported some years ago in Guatemala, after two special investigations undertaken to demonstrate the presence of kala-azar in Mexico, the general consensus was that the disease did not exist in this country.

In May of this year, a 5-year-old child, originally from the tropical state of Guerrero, 140 miles south of Mexico City, was admitted to the Hospital de Enfermedades de la Nutrición. The main symptoms were general undernutrition, irregular fever since the spring of 1950, great splenomegaly, severe anemia, epistaxis, and frequent upper respiratory infections.

Blood examinations revealed 5.40 gm. of hemoglobin per 100 cc., 1,100 leukocytes per cubic millimeter, and 118,000 thrombocytes per cubic millimeter. The bone marrow was normoblastic.

Blood globulin reached 9.35 gm. per 100 cc. and there was autohemagglutination and rouleaux formation. The cephalincholesterol and thymol flocculation, the thymol turbidity, and the formol gel tests were all strongly positive; also, there was a high titer of cold agglutinins.

All the examinations to determine the presence of infection, parasites, or mycosis gave negative results.

It was concluded that only a spleen biopsy could solve the problem, and it was performed through a laparotomy. Histologic examination revealed the presence of Leishman-Donovan bodies in the reticuloendothelial cells, establishing the diagnosis of visceral leishmaniasis. Antimonial treatment was instituted, and the fever disappeared immediately.

V 14
1951

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Taxes: Exemption in Relation to Inurement of Benefits.—This was an action by the National Chiropractic Association to recover capital stock tax, penalty and interest which it paid for the years 1933-1945. A claim for refund was denied by the Commissioner of Internal Revenue, so this suit was filed in the United States district court, northern district, Iowa, western division.

The National Chiropractic Association was formed in 1930 and the by-laws of the association during the years in question, provided for General, Class A and Class B memberships. A membership of any class entitled the member to the literature published by the association and the various other benefits extended. The Class A and B members were, in addition, eligible to receive payments from the association to reimburse them for expenses incurred in defending and paying judgments rendered in malpractice suits and resisting legal action for practicing medicine, surgery or osteopathy without a license. In 1946 the association organized a separate corporation to take over its protective benefit service and to insure Class A and B members of the association against attack from malpractice suits and legal action for practicing medicine, surgery or osteopathy without a license. Upon the transfer of these functions to the new corporation, the plaintiff decreased its membership dues to $20 per year for all classes of members but the new corporation makes a separate charge of $40 per year for the protection which it extends. The new corporation is in all respects an insurance company and is a separate corporate entity from the plaintiff.

The plaintiff contended that it is exempt from the capital stock tax under Section 101 (7) of the Internal Revenue Code which grants exemption to the following organizations: Business leagues, chambers of commerce, real estate boards, or boards of trade, not organized for profit and no part of the net earnings of which inures to the benefit of any private shareholder or individual. The only question in this case, said the court, is whether any part of the net earnings of the association inured to the benefit of the individual members during the years in question. The defendant contended that by reimbursing the individual members of the association for the expenses of litigation and by paying judgments rendered against the individual members in malpractice suits and suits for the unlawful practice of medicine, surgery or osteopathy, the net earnings of the association inured to the benefit of the individual members. The plaintiff, on the other hand, contended that any benefit inuring to its individual members by reason of the maintenance of its protective benefit fund was incidental to the benefit to chiropractors in general or the public at large and thus the exemption should not be denied.

In the case at bar, said the court, the reduction of the membership dues from $40 per year for Class A members and $60 per year for Class B members, both of which were eligible for the benefits of the protective fund, to $20 per year, the amount paid by members not entitled to the protective benefits, when the association transferred its protective functions to a separate corporation indicates that this phase of plaintiff's operations must have been more than of incidental benefit to the individual members whose dues were decreased. The additional $20 and $40 paid by the Class A and B members respectively, over and above the dues paid by members not entitled to protective benefits, could only have been a payment for a particular service or benefit the individual Class A and B members received. The difference in the dues for the Class A and B members would seem to indicate that the Class B members were receiving more benefits than the Class A members. Since the Class B membership was limited to chiropractors practicing in states where they were not licensed to practice, while the Class A membership was limited to chiropractors practicing in states where they were licensed to practice, it would thus seem that the Class B members paid $20 more per year than the Class A members because they were more vulnerable to legal action for practicing medicine, surgery or osteopathy without a license.

The plaintiff contended that the main purpose of the association was to promote the science of chiropractic. Even though this was its main purpose, the court continued, it would seem that the benefit the individual members received was not of secondary or incidental importance to such members and the fact that the plaintiff required those members who were eligible to receive the legal protective benefits to pay substantially higher dues is indicative that the plaintiff did not regard such benefits as secondary and incidental. The only evidence introduced by the plaintiff illustrating the benefit received by the chiropractors in general by reason of these legal benefits was that each chiropractor wanted the other to stay in business; that the chiropractors in general wanted to see a successful culmination of each case in order to remove any further hazard to the profession in general; and that chiropractors did not want other members of the profession sued for damages. The benefits that are received by chiropractors in general from the association's reimbursement of a member for attorneys' fees and the expenses of litigation and payment of judgments rendered against a member, concluded the court, are indirect and intangible at best, while the benefit to the individual member is direct, financial assistance.

It was therefore the view of the court that the Class A and Class B members received individual services and benefits by reason of the payments they received to reimburse them for the expenses of litigation and to pay judgments rendered against them. The receipt of these benefits constituted an inurement of net earnings to the Class A and B members. Because the net earnings of the plaintiff did inure to the benefit of the individual members, the association was not exempt from the capital stock tax. Accordingly a judgment was entered in favor of the Collector of Internal Revenue and against the National Chiropractic Association.—*National Chiropractic Ass'n., Inc. v. Birmingham et al., 96 F. Supp. 874 (1951).*

Governmental Hospital: Right to Exclude Practitioners.—The plaintiff physician filed a suit for an injunction to restrain the City of Ripon and the trustees of the Municipal Hospital Board from prohibiting and preventing him from practicing medicine and surgery in the municipal hospital. From a judgment dismissing his complaint, the plaintiff appealed to the Supreme Court of Wisconsin.

The Ripon Municipal Hospital, under the management of the Municipal Hospital Board, was completed and opened in 1936. Under existing law, the governing board of the hospital had authority to enact rules and regulations relating to the government, operation and maintenance of such hospital and, pursuant to such authority, the board adopted certain by-laws as follows: "Section 1. Every member of the medical profession in the City of Ripon who is licensed to practice . . . in this state and who is eligible to membership in the Wisconsin State Medical Society is eligible to membership on the active staff of the Ripon Municipal Hospital, and may become a member of such active staff upon registration."

"Section 6. The commission reserves the right to remove any member of the medical staff or to reprieve (deprive) any physician or surgeon of the privilege of the hospital whenever, in their sole judgment, the good of the hospital or of the patients therein demand it; and it reserves the right at any time of making any changes in these rules, by amendment, addition, substitution, repeal or revision, as in its judgment may seem for the best interests of the hospital and those who are to become patients therein."

The plaintiff had been a practicing physician in Ripon, Wisconsin, since 1924, and a member of the staff of the hospital from the time of its opening. On April 17, 1948, the municipal hospital board adopted a resolution providing in part: "Be it

therefore resolved that for the best interest of the hospital the said Dr. J. M. Johnson be suspended indefinitely from the staff."

It has been determined in this state, said the Supreme Court, that the directors of a private hospital corporation have the power to exclude physicians from the privilege of practicing their profession in said hospital but our attention has not been directed to any Wisconsin case dealing with the right of a physician and surgeon to practice in a public hospital. Quoting from 26 American Jurisprudence 592, however, the Supreme Court said that "it seems to be the practically unanimous opinion that private hospitals have the right to exclude licensed physicians from the use of the hospital, and that such exclusion rests within the sound discretion of the managing authorities. This is not, however, the rule applied to public hospitals, since a regularly licensed physician and surgeon has a right to practice in the public hospitals of the state so long as he stays within the law and conforms to all reasonable rules and regulations of the institutions." It is therefore necessary, said the court, to determine whether or not section 6 of the by-laws duly enacted for the government and maintenance of the defendant hospital is a reasonable regulation. Neither this section nor any other section of the by-laws provides for any notice to the doctor of the nature of the charges against him nor for any notice of a date of hearing at which he may appear and defend himself as to the charges. No notice was given to the plaintiff herein prior to the adoption of the resolution suspending his right to practice his profession in said hospital. A regulaton for the suspension of the right of a duly licensed physician and surgeon residing in the municipality owning, maintaining and operating a public hospital is not reasonable unless provision is made for such notice and hearing. The trial held after the resolution of suspension is not a substitute for a hearing before the municipal hospital board. The resolution adopted on April 17, 1948, is therefore void and of no effect and the Supreme Court concluded that the plaintiff, being duly licensed and a resident of the city of Ripon, was entitled to continue the practice of his profession in the hospital.

Accordingly the judgment of the trial court dismissing the plaintiff's complaint was reversed.—*Johnson v. City of Ripon et al., 47 N.W. (2d) 328 (Wisconsin 1951).*

Naturopathy: Right to Use Drugs.—This was an action by the plaintiffs individually and as members of the Naturopathic Board of Examiners of the State of Arizona for a declaratory judgment concerning the interpretation of the statutes defining naturopathy and medicine. From a judgment in favor of the defendants, the plaintiff appealed to the Supreme Court of Arizona.

The basic question, said the court, is the right of licensed naturopaths to prescribe and to use drugs in the practice of their healing art. The Arizona statute defining naturopathy provides: "For the purpose of this act, naturopathy, which includes all forms of physiotherapy, is hereby defined to be: A system of treating the abnormalities of the human mind and body by the use of drugless and non-medical methods, and includes the use of physical, electrical, hygienic, and sanitary measures incident thereto." The contention of the plaintiffs is that the term "drugless . . . methods," as used in the statute, refers to the naturopathic system as it existed at the time of the enactment of this definition in 1935. The defendants contend, however, that the legislature, by this same statute, qualified and limited the practice of naturopathy.

The trial court found that, as a matter of fact, naturopathy as practiced was defined and understood by its schools, practitioners and text writers as a system of the healing arts, embracing prevention, diagnosis, care and treatment of human ills, diseases, traumas and deformities, and that practitioners, by the standards of the profession, were allowed to use substances largely nutritional of plant, animal or mineral origin as are naturally found in and required by the human body and were allowed to prescribe, in the treatment of patients, dehydrated and pulverized food substances, minerals, cell salts, herbs, plant roots, barks and vegetable oils. The trial court also found that the naturopathic board of examiners had, from the date of enactment of the law, consistently interpreted the law to authorize its fraternity to use botanical, organic, biochemical minerals, tissue cell substances and antiseptic and germicidal agents.

In the final analysis, said the Supreme Court, the real issue presented in this case is what was the intent of the legislature in using the term "drugless . . . methods" in defining naturopathy? In the absence of a clearly defined legislative intent, continued the Supreme Court, words and phrases are to be construed and understood according to the common and approved usage of the language. Webster's New International Dictionary, a work which is authoritative in its own field, defines the word "drug" as "any substance used as a medicine or in the composition of medicines for internal or external use." The same dictionary defines the suffix "less" as "A privative adjective suffix, denoting: a. With nouns, without, destitute of, not having, free from, as in witless, childless, fatherless, doubtless." The word "drugless" then, taken in its ordinary and, apparently, only meaning, manifestly must mean without drugs. The plaintiffs contended, however, that the legislature used the term "drugless . . . methods" in a descriptive sense, relating only to general practices; that it did not intend to qualify or limit the practice of naturopathy as it existed at the time the naturopathic licensing law was enacted.

We believe the plaintiffs' interpretation of the statute is unwarranted, said the Supreme Court. A careful examination of the naturopathic act indicates that the legislature considered that naturopaths, by training, were not qualified to administer drugs. Thus, the legislature by statute specifically provided that materia medica was not to be among the courses of study required by the state or among those added courses which the board might require as a requisite to obtaining a naturopath's license. Materia medica is the study of the properties and use of drugs. It is evident that the legislature desired to prevent naturopaths from doing two things for which, by training, they are not qualified, viz.: prescribing drugs and performing surgical operations. It is significant that these are the only two subjects of study which are not by statute and cannot, by the board, be made requirements for a naturopath's license.

The defendants state that they are at a loss to know what group of drugs or what drug does not have, either in its pure form or as a part of its ingredients, botanical agents, organic substances, minerals, tissue cell salts or substances naturally present in the human body, which, under the interpretation of the statute as adopted by the plaintiffs, naturopaths are authorized to employ in their treatment of patients. It seems obvious said the Supreme Court, that the definition adopted by the naturopaths would include not only most of the known narcotic preparations prepared directly from botanical agents, but would include almost all, if not all, of the drug preparations used generally, ranging from castor oil and epicac to thyroid and pituitary extracts, insulin and penicillin. By their own definition, naturopaths would have the right to prescribe and administer drugs of immense potency, which if prescribed or administered by unqualified persons might result in disasterous consequences.

The plaintiffs, continued the court, apparently seek the right to perform services for which by statute they are not qualified or trained. There exists in Arizona no such thing as a right to practice medicine; all that does exist is the privilege to practice medicine as allowed and regulated by the legislature. Had the legislature not intended to qualify and limit naturopathic practice, it could easily have spelled out in clear and unequivocal language its recognition of naturopathy as it was taught and practiced at the time the act was adopted. Whether the statute in question is unfair, unwise, or unjust is a legislative matter and not for this court to determine. If relief is to be had, it must be through the legislature, not through the medium of this court. Our only concern, the Supreme Court concluded, is to interpret the law as it is written.

Accordingly the judgment of the trial court holding that naturopaths are not permitted to administer drugs in the course of their practice was affirmed.—*Kuts-Cheraux et al. v. Wilson et al., 229 P. (2d) 713 (Arizona, 1951).*

V 147
1951

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. Journal Diseases Child., Chicago

82:1-120 (July) 1951

Cerebral Palsy in Relation to Development: Presidential Address. B. Crothers.—p. 1.
Blood Incompatibility Between Mother and Child in Etiology of Mental Deficiency. I. Zwerling, H. Gold, G. A. Jervis and V. Ginsberg. —p. 7.
*Effects of Streptomycin upon Human Fetus. A. Rubin, J. Winston and M. L. Rutledge.—p. 14.
Aqueous Dispersions of Vitamins A and D in Premature Infants: Studies with Reference to Rickets and Retrolental Fibroplasia. B. Kramer, S. M. Gordon, H. M. Berger and A. E. Sobel.—p. 17.
Fetal Ascites. C. Hoffman, S. D. Sternberg and H. D. Rascoff.—p. 28.
Erythema Multiforme Exudativum. E. M. Best Jr. and D. S. McKee. —p. 32.
Metastatic Calcification in the Newborn. N. M. Greenstein and L. Kamer.—p. 37.
Treatment of Juvenile Thyrotoxicosis with Propylthiouracil. M. E. Drake, A. Howard, F. Heldrich, B. S. Joslin and J. Imburg.—p. 43.
Primary Bronchogenic Carcinoma of Lung in Children: Review of Literature: Report of Case. C. K. Cayley, H. J. Caez and W. Mersheimer. —p. 49.

Effects of Streptomycin on Human Fetus.—Three women with active tuberculosis received streptomycin therapy during mid pregnancy and late pregnancy. The mothers received streptomycin prior to the birth of each infant for periods ranging from 23 to 40 days in doses totaling 23 to 40 gm. Careful neurological examinations (including tests of vestibular function with the Barany technique) made on the infants at frequent intervals up to one and a half years after delivery revealed no evidence of damage from the drug. Although two of the infants were born prematurely (cause unknown), their general development is normal. While this limited experience does not prove that the fetus is safe from a possible neurotoxic effect of streptomycin when the mother receives the drug, it suggests that such is the case.

A.M.A. Arch. Indust. Hyg. & Occup. Med., Chicago

4:1-102 (July) 1951

Method of Obtaining Reproducible Breath Radon Samples. J. H. Harley, E. Jetter and M. Eisenbud.—p. 1.
*Industrial and Forensic Applications of Electroencephalography. J. L. Fetterman and V. M. Victoroff.—p. 10.
Control of Dusts by Walter Mists. K. W. Nelson.—p. 25.
Symptomatic Treatment of Common Cold. R. F. Buchan, A. E. Gras and F. H. David.—p. 32.
Arsine: Electrocardiographic Changes Produced in Acute Human Poisoning. C. J. Josephson, S. S. Pinto and S. J. Petronella.—p. 43.
Toxicity of Carbon Monoxide and Hydrogen Cyanide Gas Mixtures: Preliminary Report. R. H. Moss, C. F. Jackson and J. Seiberlich. —p. 53.
Persistence of Beryllium Oxide in Lungs After Inhalation of Dust. F. R. Dutra, E. J. Largent, J. Cholak and others.—p. 65.
Study of Eye Irritation Caused by Los Angeles Smog. R. D. Cadle and P. L. Magill.—p. 74.

Electroencephalography: Industrial and Forensic Application.—The electroencephalograph has taken its place with the electrocardiograph and other devices as a research and diagnostic instrument. Properly integrated with other clinical, laboratory, and survey procedures, it can help in removal of persons from jobs they should not hold, evaluate mental capacity following a brain injury, detect latent cortical seizure states such as epilepsy, estimate the effect of environment and toxic agents on cerebral function, and separate some hysterical from organic disorders. In medicolegal cases it is of special value in the determination of mental capacity in testamentary cases, culpability in criminal court, latent and actual cerebral damage in compensation cases, and malingering in litigation claiming total loss of vision, hearing, or tactile sensation. It may be called on to help plan treatment and evaluate prognosis of the encephalopathies. The authors propose electroencephalographic tests as an aid in the selection of those workers and executives whose alertness and clear consciousness is vital to safety and welfare of others, as in public transport.

A.M.A. Arch. Neurology and Psychiatry, Chicago

66:1-118 (July) 1951

Mechanism and Cortical Representation of Feeding Pattern. B. P. Babkin and J. M. Van Buren.—p. 1.
Occlusion of Middle Cerebral Artery: Experimental Study. J. Harvey and T. Rasmussen.—p. 20.
Is There a Specific Personality in Tuberculous Patients? E. L. Demuth. —p. 30.
Psychosis Occurring During Antabuse® Administration. G. L. Usdin and K. E. Robinson.—p. 38.
Psychological Studies on Patients with Multiple Sclerosis. M. R. Harrower and J. Kraus.—p. 44.
Lasègue Sign and Kernig Sign: Historical Notes. R. Wartenberg.—p. 58.
Intramedullary Malignant Teratoma of Spinal Cord: Report of Case. L. J. Lemmen and C. M. Wilson.—p. 61.
Psychiatry Without Freud. I. Galdston.—p. 69.

A.M.A. Arch. Ophthalmology, Chicago

46:1-112 (July) 1951

Cytological and Bacteriological Studies of Aqueous Humor in Uveitis. L. von Sallmann, J. C. Locke and B. D. Locke.—p. 4.
Ocular Histology in Hurler's Disease (Gargoylism). D. Wexler.—p. 14.
Bullous Keratitis from Vitreous Contact. B. D. Leahey.—p. 22.
Treatment of Experimental Herpes Simplex Keratitis in Rabbit. J. W. Hallet, I. H. Leopold, A. W. Vogel and others.—p. 33.
Angioma of Choroid: Clinicopathologic Report of Two Cases of Partial and Complete Encephalotrigeminal Angiomatosis. M. L. Berliner and G. M. Breinin.—p. 39.
Traumatic Encephaloceles of Orbit. A. B. King.—p. 49.
*Role of Terramycin in Ophthalmology. N. G. Douvas, R. M. Featherstone and A. E. Braley.—p. 57.
Dermoid of Limbus Involving Iris Angle and Lens. L. L. Garner.—p. 69.
Strabismus. H. M. Burian.—p. 73.

Terramycin in Ophthalmology.—Terramycin hydrochloride, powdered and in a special ophthalmic borate buffer, and 0.1% terramycin hydrochloride in ophthalmic ointment were used for various studies. Ophthalmic solutions of terramycin hydrochloride in special borate buffer, pH 8.175, appeared to be more stable than aureomycin in the same solution and remained stable for five days when stored at room temperature. No change in drug effectivity occurred after 50 days of refrigeration. In in vitro experiments, terramycin compared favorably with the other antibiotic and chemotherapeutic agents studied. Penicillin was the only drug superior to terramycin in the studies with alpha hemolytic streptococci, Diplococcus pneumoniae, and other gram-positive organisms. Chloramphenicol and streptomycin appeared, in general, to be more effective against the gram-negative organisms tested than terramycin and the other drugs. Terramycin failed to protect mice inoculated with the virus of herpes simplex. Terramycin and aureomycin penetrated into the rabbit aqueous humor after a corneal bath only when the corneal epithelium was abraded. Penetration approximated 28 γ per cubic centimeter for terramycin and 8 γ per cubic centimeter for aureomycin under the conditions used. After intravenous administration, 3 γ of terramycin per cubic centimeter appeared to be present in the aqueous, whereas no penetration of aureomycin could be detected. In terms of in vitro bacterial sensitivities, it would appear that adequate aqueous concentrations of terramycin can be expected clinically after local instillation in cases of corneal ulceration in which the epithelial barrier is not present. Clinically, terramycin was well tolerated and effective in the treatment of

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

An asterisk (*) before a title indicates that the article is abstracted.

conjunctivitis and corneal ulcerations with a bacterial origin. It was not effective in the treatment of acute follicular conjunctivitis, type Béal, and dendritic keratitis. When used prior to operation, 0.1% terramycin hydrochloride ophthalmic ointment was effective for the prophylactic removal of bacteria from the conjunctival sac.

Alabama State Medical Assn. Journal, Montgomery

20:457-516 (June) 1951

Male Frog Pregnancy Test: Valuable Office Procedure. J. D. Dowling Jr. —p. 457.
Carcinoma of Cervix. C. S. Stickley, E. M. Moore and W. R. Reynolds. —p. 460.
Prefrontal Lobotomy. W. G. Haynes.—p. 466.
X-Ray Therapy: Indications and Contraindications. R. N. Long.—p. 470.
Acute Perforated Peptic Ulcer. M. E. Garner and R. A. Hamrick. —p. 473.

American Journal of Medical Sciences, Philadelphia

222:1-120 (July) 1951

*NPH Insulin: Its Comparison with Previous Insulin Regimens. H. M. Baganz, S. C. Carfagno, B. Y. Cowan and E. S. Dillon.—p. 1.
Interrelationship of Vitamin K and Dicoumarin. G. E. Collentine and A. J. Quick.—p. 7.
Relation of 17-Ketosteroid Excretion to Completeness of Virilizing Syndrome. L. M. Bayer and P. Koets.—p. 13.
Apparently Absent Q Wave in Left Bundle Branch Block. L. A. Soloff and J. Zatuchni.—p. 18.
Blood Ergothioneine Levels in Euthyroid and Hyperthyroid Subjects. F. Larson and E. C. Albright.—p. 26.
Effect of Large Doses of Progesterone in Rheumatoid Arthritis. P. J. Vignos Jr. and R. I. Dorfman.—p. 29.
Effects of Dioxyline Phosphate and Enteric-Coated Khellin on Coronary Artery Insufficiency. M. M. Best and W. S. Coe.—p. 35.
Influence of Maternal and Obstetrical Factors on Fetal Survival. J. L. Fitzgerald Jr., G. N. Ferris and C. E. Toshach.—p. 40.
Diagnostic Pulmonary Artery Pulse Pressure Contour in Patent Ductus Arteriosus Found During Cardiac Catheterization. D. C. Levinson, R. S. Cosby, G. C. Griffith and others.—p. 46.
Inadequacy of Glycemic Reaction to Epinephrine as Measure of Hepatic Glycogen. M. D. Altschule and E. P. Siegel.—p. 50.
Retrograde Extrusion or Prolapse of Gastric Mucosa into Esophagus. M. Feldman.—p. 54.
Effects of Experimental Acidosis on Dynamics of Circulation. K. Lange, F. Graig, V. Tchertkoff and others.—p. 61.
Tracheobronchial Aspiration as Bedside Procedure: Indications and Limitations. R. Weyl.—p. 66.
Device for Objective Clinical Measurement of Cutaneous Elasticity: "Pinchmeter." F. Olmsted, I. H. Page and A. C. Corcoran.—p. 73.
Prevention of Acute Anoxic Anoxia by Means of Dispersion Oxygenation of Blood. F. Gollan, L. C. Clark Jr. and V. B. Gupta.—p. 76.
Effect of Dibuline on Nocturnal Gastric Secretion of Ulcer Patients. S. H. Lorber and H. Shay.—p. 82.
Complications of Bronchial Asthma. V. J. Derbes, N. K. Weaver and A. L. Cotton.—p. 88.
Psychiatry and Geriatrics: Review. J. A. Frank.—p. 109.

NPH Insulin.—The blood glucose levels with NPH (neutral protamine Hagedorn) insulin and with previous insulin regimens were compared in 41 hospitalized patients with mild, moderate, or moderately severe diabetes mellitus. Of 41 patients, 14 were controlled on protamine-zinc insulin, five were controlled on regular insulin, and 22 were controlled on unmixed combinations of protamine-zinc and regular insulin. All were changed to a single dose of NPH insulin before breakfast. NPH insulin is a highly purified suspension of insulin, protamine, and zinc crystals. It differs basically from protamine-zinc insulin in that it contains approximately 0.5 mg. of protamine per 100 units of insulin instead of 1.25 mg. of protamine per 100 units of insulin contained in protamine-zinc insulin. The dietary intake, exercise, and associated clinical conditions were kept constant during the period of study. The postprandial effect of NPH insulin was superior in all patients who had previously received only protamine-zinc insulin. In almost all patients previously using combinations of protamine-zinc and regular insulins, the postprandial blood glucose levels were as good with NPH insulin. This is further evidence for a quick action of NPH insulin. The fasting, 3 p. m., and 9 p. m. blood glucose levels were generally more satisfactory with NPH insulin than with the previous regimens. General rules for the change of other patients to NPH insulin are as follows: patients requiring less than 40 units of protamine-zinc insulin or protamine-zinc insulin and regular insulin per day can be safely given the same total dose of NPH insulin; for patients requiring more than 40 units of insulin per day, the NPH insulin dose is equal to the total protamine-zinc insulin dose plus 80% of the regular insulin dose. Subsequent experience with a large number of cases has upheld these rules. NPH insulin is a valuable addition to the insulin armamentarium, because it best meets the need of a large proportion of patients with diabetes mellitus.

American Journal of Ophthalmology, Chicago

34:945-1080 (July) 1951

Present Status of ACTH and Cortisone in Clinical Ophthalmology. A. C. Woods.—p. 945.
*Further Report on Exophthalmic Ophthalmoplegia and Its Relation to Thyrotoxicosis. I. Mann.—p. 960.
Effect of Subconjunctival Cortisone upon Immediate Union of Experimental Corneal Grafts. F. W. Newell and J. M. Dixon.—p. 977.
Aureomycin as Prophylaxis Against Ophthalmia Neonatorum: Second Series. A. M. Culler and S. G. Clark.—p. 982.
Mucocele of Frontal Sinus. D. Kravitz.—p. 985.
Study of Ultrastructure of Retinal Epithelium by Means of Electronic Microscope. M. Sebruyns.—p. 989.
Malignant Glaucoma. P. A. Chandler.—p. 993.
Disciform Degeneration of Macula. E. Maxwell.—p. 1000.
*Etiology of Retrolental Fibroplasia. A. C. Krause.—p. 1003.
Nature of Heterophorias. S. V. Abraham.—p. 1007.
New Method for Measuring Aniseikonia. G. A. Brecher.—p. 1016.
Emmetropia. A. Cowan.—p. 1021.
Carbon-Monoxide Asphyxia with Visual Sequelae: With Report of Case. A. I. Fink.—p. 1024.
Raised-Type Books for Blind: Brief Review of Their Printing. B. Chance. —p. 1027.

Exophthalmic Ophthalmoplegia and Thyrotoxicosis.—In 1946 Mann attempted to assess the role of the thyroid and the pituitary in exophthalmic ophthalmoplegia. The 18 cases described then and the 19 added here fall into three groups. The patients of group 1 had primary thyroxine deficiency with compensatory excess thyrotropic hormone of the pituitary. Group 2 contained cases in which the history suggested primary excess thyroxine secretion followed by thyroidectomy or spontaneous atrophy and later replaced by excess thyrotropic hormone. In the patients of group 3 signs of excess thyroxine and excess thyrotropic hormone coexisted. These were difficult to treat, and the illness lasted over a year and sometimes much longer. The 19 cases presented here were mostly less severe than those described in 1946. They show that definite degrees of severity can be detected, from mild manifestations to those sometimes classified as malignant exophthalmos. Results in these 19 new cases were good. No eye was lost from exposure, and Naffziger's operation was never necessary. Signs of excess thyrotropic hormone were present in all patients, but in group 1 the basal metabolic rate was consistently low; in group 2, it bears no constant relation to the eye condition and is very variable; in group 3, it is consistently high. The decreasing incidence of females in the three groups may be related to the greater liability of females to myxedema. The average age in all the groups is somewhat higher than the average age for thyrotoxicosis. The signs of excess pituitary thyrotropic hormone, consisting of orbital, lid and conjunctival edema and infiltration, and, hence, proptosis, ophthalmoplegia, fundus changes, and loss of visual acuity, must be distinguished from those of excess or deficient thyroxine in the diagnosis and treatment of proptosis associated with endocrine imbalance.

Etiology of Retrolental Fibroplasia.—In retrolental fibroplasia, some unknown factor affects the blood vessels of the inner eye, particularly those related to the retina and the vitreous. Exudation, hemorrhage, and retinal separation are common and are followed by fibrosis and gliosis and later by maldevelopment in a rapidly growing eye. The etiology of fibroplasia has been investigated from many points of view. The kidneys of premature infants are limited in ability to concentrate electrolytes, to manufacture ammonia, and to excrete phosphates. Edema is commonly observed in these infants and may be due to deficient renal function. Many balance studies support the idea. Little attention has been given the fact that cow's milk has three times the electrolyte content of human milk. That this concentration approaches the limit of capabilities of the kidney of prematurely born infants is proved by balance studies. Edema in prematurely born infants should be commonest in the group fed formulas made with undiluted cow's milk (or the partially skimmed undiluted cow's milk with added carbohydrate now in wide use) and least common in the group fed unadulterated human milk. The latter type

V 147
1951

of feeding is less and less used in the United States. In teaching hospitals, the special undiluted cow's milk formulas are more commonly used, and blood transfusions are more likely to be given. It is of interest that the highest incidences of fibroplasia are from the premature nurseries associated with medical schools. When edema is generalized, it must affect the hydrostatic-oncotic pressure relationships of the eyes as well as of the rest of the body. It is easily seen that, with edema, acidosis, and anoxia, the capillaries tend to leak fluid serum and blood in the inner eye and give rise to the mechanism of fibroplasia. The vagaries of edema, the differences in renal functional maturity, and the different methods of premature management (feeding and types of vitamin supplements) explain the varying incidences of the disease.

American Journal of Physiology, Baltimore

165:497-736 (June) 1951. **Partial Index**

Ballistocardiography in Experimental Mitral Insufficiency. M. M. Newman, E. B. Bay and W. E. Adams.—p. 497.
Ventricular Ectopic Rhythms and Ventricular Fibrillation Following Cardiac Sympathectomy and Coronary Occlusion. A. S. Harris, A. Estandía and R. F. Tillotson.—p. 505.
Experimental Pulmonary Arteriovenous Fistula. T. Takaro, H. E. Essex and H. B. Burchell.—p. 513.
Nomogram for Cardiac Contractility Involving Calcium, Potassium and Digitalis-Like Drugs. W. T. Salter and E. A. Runels.—p. 520.
Estimation of Hepatic Sinusoid Pressure by Means of Venous Catheters and Estimation of Portal Pressure by Hepatic Vein Catheterization. E. W. Friedman and R. S. Weiner.—p. 527.
Problem of Renal Vascular Shunts. J. H. Moyer and C. A. Handley. —p. 548.
Studies on Leukopenia-Producing Factor Obtained from Inflammatory Tissue. I. Kemp, G. E. Cartwright and M. M. Wintrobe.—p. 554.
Effect of Dietary Electrolyte Deficiencies on Blood and Liver Levels of Reduced Glutathione. R. R. Grunert, J. H. Meyer and P. H. Phillips. —p. 568.
Carbohydrate Metabolism in Riboflavin-Deficient Dogs. H. E. Axelrod, M. G. Gullberg and A. F. Morgan.—p. 604.
Production of Fatty Livers by Ligation of Pancreatic Ducts in Rats. G. H. A. Clowes Jr. and L. B. Macpherson.—p. 628.
Effect of Thyroid Hormone on Radiation Lethality. W. W. Smith and F. Smith.—p. 639.
Distribution of Steroid Hormones in Biologic Systems. F. Bischoff, R. E. Katherman and V. Favati.—p. 667.

American Journal of Psychiatry, New York

107:881-960 (June) 1951

Clinical Language Rehabilitation of the Veteran: Methods and Results. E. D. Freud.—p. 881.
Emotional Problems of Maladjustment in Children with Reading Difficulties. R. P. Odenwald and J. A. Shea.—p. 890.
Inference Testing in Psychotherapy. J. R. Reid and J. E. Finesinger. —p. 894.
Psychiatric Symptoms and Syndromes in Parkinson's Disease. R. S. Schwab, H. D. Fabing and J. S. Prichard.—p. 901.
Electromyographic Recording During Interview. F. H. Davis and R. B. Malmo.—p. 908.
Hypnotic and Hypnotherapeutic Control of Severe Pain. H. Rosen. —p. 917.
Prognoses and Psychological Scores in Electroconvulsive Therapy, Psychosurgery, and Spontaneous Remission. I. W. Scherer.—p. 926.
Sterilization in Preventive Psychiatry. C. J. Gamble.—p. 932.

108:1-80 (July) 1951

Progress Study of Lobotomized and Control Patients. S. Friedman, B. F. Moore, C. O. Ranger and C. Russman.—p. 10.
*Psychiatric Symptoms Associated with Intracranial Neoplasms. T. L. L. Soniat.—p. 19.
Conception of Wholes and Parts in Early Infantile Autism. L. Kanner. —p. 23.
Involutional Illnesses: Survey of 379 Patients, Including Follow-Up Study of 114. C. D. Tait Jr. and G. C. Burns.—p. 27.
Psychodynamics of Failure in Therapy. L. Koren, V. Goertzel and M. Evans.—p. 37.
Mental Deficiency as Basic Discipline in Training of Psychiatrist. R. Gibson.—p. 42.
Acute Pulmonary Changes During Insulin Coma Therapy. S. Cogan and R. J. Gross.—p. 44.
Changes in Body Weight of Schizophrenic Patients Following Prefrontal Lobotomy. C. W. Buck, H. B. Carscallen and G. E. Hobbs.—p. 46.
Neurophrenia. E. A. Doll.—p. 50.
Heredity and Mental Traits. S. L. Halperin and M. Guensberg.—p. 54.

Psychiatric Symptoms and Intracranial Neoplasms.—Records of 128 consecutive patients with proved intracranial neoplasms seen at the Ochsner Clinic were reviewed. Slightly more than half had psychiatric symptoms on admission to the clinic. Although tumors of the frontal lobe are commonly considered to be associated with psychiatric symptoms with greater frequency than other types of intracranial neoplasms, such symptoms are associated with tumors of the temporal lobe just as often. However, tumors of the frontal lobe anterior to the motor areas often produce subtle peculiarities in the patient's personality that are insidious in onset. Other psychiatric manifestations produced by frontal lobe tumors appear gradually; these include impairment of memory (perhaps at first considered as absent-mindedness but later becoming a more obvious and serious memory defect); difficulty in concentration; a flattening of affect coupled with growing apathy; carelessness in personal appearance; and use of obscene and facetious speech. Neoplastic lesions of the temporal lobe are notorious for causing hallucinations, which may be visual, olfactory, or gustatory. Patients with tumors of the occipital lobe may complain of visual hallucinations that are not "formed," that is, they may see flashes of light or color. Ball-valve tumors of the third ventricle in which the severe headache may be quickly relieved by changing the position of the head must not be mistaken for conversion hysteria. Hypersomnolence may be produced by tumors involving the floor of the third ventricle; such somnolence is frequently mistaken for narcolepsy or hysteria. Such patients may fall asleep while driving automobiles, while eating, or at other inappropriate times. Alertness during history-taking and examination is the best means of appreciably minimizing diagnostic errors.

American Review of Tuberculosis, New York

64:1-126 (July) 1951

Artificial Pneumothorax: Statistical Analysis of 557 Cases Initiated in 1930-1939 and Followed in 1949: I. Influence of Clinical Findings Before Induction on Early and Late Results. R. S. Mitchell.—p. 1.
Id.: II. Fate of Contralateral Lung. R. S. Mitchell.—p. 21.
Id.: III. Influence of Features of Management After Induction on Early and Late Results. R. S. Mitchell.—p. 27.
*Management of Massive Tuberculous Pneumonia: Therapeutic Review of 75 Cases. W. S. Schwartz and R. E. Moyer.—p. 41.
Electrocardiographic Changes Accompanying Pulmonary Collapse Therapy and Thoracic Surgery. M. Weinshel, I. Mack, A. Gordon and G. Snider.—p. 50.
Electrocardiogram in Patients with Mediastinal Shift to the Left. W. Weiss.—p. 64.
Evaluation of Hemagglutination Reaction in Diagnosis of Active Tuberculosis. W. M. M. Kirby, J. M. Burnell and B. O'Leary.—p. 71.
Potassium Iodide and Para-Aminosalicylic Acid (PAS) in Chronic Fibroid Pulmonary Tuberculosis. M. R. Lichtenstein.—p. 77.
Growth and Enumeration of Mycobacteria in Transparent Agar Medium. D. Yegian and V. Budd.—p. 81.
Streptomycin and PAS in Experimental Tuberculosis of Guinea Pigs Infected Intracerebrally with Virulent Tubercle Bacilli. W. Steenken Jr., E. Wolinsky and P. C. Pratt.—p. 87.
Sulfone Compounds and Potassium Iodide Alone and in Combination with Streptomycin in Treatment of Experimental Tuberculosis of Guinea Pigs. J. A. Kolmer.—p. 102.

Massive Tuberculous Pneumonia.—Prior to the use of streptomycin massive tuberculous pneumonia was generally fatal. At the onset tuberculous pneumonia is usually difficult to distinguish from other forms of bacterial pneumonia. The true diagnosis may be revealed by failure of the illness to subside despite therapy with penicillin or other drugs. Tissue destruction occurs early in tuberculous pneumonia, and cavities sometimes involve an entire lobe. Death may occur before this takes place, but usually the patient lives on for several months. The 75 patients with massive tuberculous pneumonia reviewed here were part of an extensive study of the effects of streptomycin on tuberculosis instituted by the Veterans Administration, the Army, and the Navy. The diagnosis of massive tuberculous pneumonia was based on: (1) the presence of large confluent dense shadows in the chest roentgenogram, involving one (but usually more than one) lobe of the lung; (2) high elevation of temperature and severe toxicity; (3) physical signs indicative of consolidation; and (4) tubercle bacilli in the sputum. All 75 patients were treated with streptomycin. Collapse therapy in the form of pneumoperitoneum was withheld in the first 16 patients to ascertain the effects of streptomycin alone. Three additional patients refused this form of collapse. Pneumoperitoneum was already in effect in nine patients before the advent of the tuberculous pneumonia.

In the first few of those who received pneumoperitoneum, the time of induction was determined by trial and error. Now it appears that pneumoperitoneum should be used in all cases when feasible and it should be instituted within six to eight weeks after beginning antimicrobial therapy. In this way, the collapse therapy is not started until some regression of toxicity and roentgenographic improvement has occurred, and the increased consolidation sometimes seen when pneumoperitoneum and streptomycin are begun simultaneously may be avoided. Crushing of the phrenic nerve was added to the pneumoperitoneum in 11 patients. It proved particularly useful in cases of unilateral disease when the expected clearing of the lesion and disappearance of cavity were not attained.

Anesthesiology, New York

12:401-540 (July) 1951. **Partial Index**

Anatomic Considerations of Infant Larynx Influencing Endotracheal Anesthesia. J. E. Eckenhoff.—p. 401.
Electrocardiographic Studies During Endotracheal Intubation: III. Effects During General Anesthesia and Intravenous Diethylaminoethanol. C. L. Burstein, G. Zaino and W. Newman.—p. 411.
Factors Influencing Effects of Anoxic Anoxia. J. L. Bollman, A. N. Fazio and A. Faulconer Jr.—p. 420.
Use of Vasoconstrictors to Prolong Spinal Anesthesia. J. J. Bonica, P. H. Backup and W. H. Pratt.—p. 431.
Electrocardiographic Studies During Induction of Anesthesia Using Ethyl Chloride, Ether, Vinethene and Cyclopropane. R. W. Virtue and A. F. Pierce.—p. 442.
Seconal Sodium as Basal Hypnotic and Adjunct to Anesthesia—Evaluation of Improved Preparation for Intravenous Administration. O. F. Bush, P. S. Pentecost and J. Adriani.—p. 447.
Treatment of Hypotensive States of Spinal Analgesia with Dilute Neosynephrin Solution. W. Kruel and O. S. Orth.—p. 455.

Annals of Western Medicine & Surgery, Los Angeles

5:601-664 (July) 1951

*Metastasis of Neoplasms to Other Neoplasms. P. Ortega Jr., I. Y. Li and M. Shimkin.—p. 601.
Role of Emotions in Cardiovascular Disorders. L. Rangell.—p. 610.
Simplified Quantitative Caloric Testing and Use of Binaural Test. S. Kaplan.—p. 619.
Should Perforated Gastroduodenal Ulcerated Lesions be Treated Routinely by Nonoperative Methods? D. C. Collins.—p. 622.
Common Bile Duct Reconstruction in Acute and Subacute Perforation. W. C. Custer.—p. 628.
Small Bowel Obstruction Caused by Endometriosis: Case Report. W. G. Abel III.—p. 631.
Diaphragmatic Hernia. W. N. Harsha.—p. 634.

Metastasis of Neoplasms to Other Neoplasms.—Metastasis of one neoplasm to another independent neoplasm is uncommon. The literature reveals 39 instances of metastasis to a benign tumor and eight of metastasis to another, unrelated, presumably malignant tumor. The present report adds two cases to the former and one to the latter group, as well as two examples of metastasis of epithelial neoplasms to lymph nodes involved with lymphatic leukemia. The five cases of neoplasms with metastases to other neoplasms were the following: (1) melanoma of ocular choriod metastatic to a renal clear-cell carcinoma, (2) probable bronchogenic carcinoma metastatic to an adrenal cortical adenoma, (3) mammary adenocarcinoma metastatic to uterine leiomyoma, (4) epidermoid carcinoma of the tongue metastatic to a lymphatic leukemia lymph node, and (5) adenocarcinoma of the breast metastatic to a lymphatic leukemia lymph node.

Bulletin New York Academy of Medicine, New York

27:407-474 (July) 1951

Coronary Circulation in Health and Disease as Studied by Coronary Sinus Catheterization. R. J. Bing.—p. 407.
Prevention of Burning Accidents in England and America. L. Colebrook.—p. 425.
Present Status of Antibiotics in Treatment of Protozoan Diseases. H. B. Shookoff.—p. 439.
New and Old Definitions of Normal Blood Pressure: Clinical Significance of Newly Established Limits. A. M. Master, I. Goldstein and M. B. Walters.—p. 452.
Treatment and Prognosis of Convulsive Disorders in Children. H. Yannet.—p. 466.

Circulation, New York

4:1-160 (July) 1951

*Abscesses of Valve Rings of Heart, Frequent but Not Well Recognized Complication of Acute Bacterial Endocarditis. W. H. Sheldon and A. Golden.—p. 1.
*Use of Procaine Amide in Cardiac Arrhythmias. H. J. Kayden, J. M. Steele, L. C. Mark and B. B. Brodie.—p. 13.
Electron Micrograph of Plasma Lipoprotein Molecule (Sf 10-20). J. J. Prendergast and D. M. Teague.—p. 23.
Lipoproteins, Liver Disease, and Atherosclerosis. F. T. Pierce and J. W. Gofman.—p. 25.
Effect of Carbon Tetrachloride Poisoning on Serum Lipoproteins Associated with Atherosclerosis. F. T. Pierce and J. W. Gofman.—p. 29.
Observations with Radioactive Hydrogen (H^3) in Experimental Atherosclerosis. M. W. Biggs and D. Kritchevsky.—p. 34.
Hypercholesteremia and Atheromatosis in Chicks on Restricted Diet Containing Cholesterol. S. Rodbard, C. Bolene and L. N. Katz.—p. 43.
Respiratory Complications from Tetraethylammonium Ion: Report of Two Deaths. G. A. McLemore Jr., H. D. Green and T. N. Lide.—p. 47.
Congestive Heart Failure: Variations in Electrolyte Metabolism with Salt Restriction and Mercurial Diuretics. R. J. Stock, G. H. Mudge and M. J. Nurnberg.—p. 54.
Pattern of Vascular Reactivity in Experimental Hypertension of Varied Origin. I. H. Page and J. McCubbin.—p. 70.
Studies on Congestive Circulatory Failure: IV. Effect of Various Diuretics on Excretion of Water and Chlorides. H. A. Schroeder.—p. 87.
Fixation of Radioactive Digitoxin by Isolated Hearts. A. Sjoerdsma and C. S. Fischer.—p. 100.
Deposition of Digitoxin in Tissues of Rat After Parenteral Injection. R. Bine Jr., M. Friedman, S. O. Byers and C. Bland.—p. 105.
Deviations of RS-T Segment in Acute Subendocardial Injuries. R. D. Pruitt, H. B. Burchell and H. E. Essex.—p. 108.
Oxygen Tension of Tissues by Polarographic Method: III. Effect of Local Heat on Oxygen Tension of Skin of Extremities. O. Horwitz, G. Peirce and H. Montgomery.—p. 111.
Experimental Reversal of Capillary Blood Flow. R. Heimbecker, V. Thomas and A. Blalock.—p. 116.
Great Toe Calorimetry in Peripheral Vascular Diseases. M. Mendlowitz and H. A. Abel.—p. 120.
Angiocardiography. C. T. Dotter and I. Steinberg.—p. 123.

Abscesses of Valve Rings of Heart.—Single or multiple abscesses of the valve rings of the heart were demonstrated on necropsy in 12 of 14 patients with acute bacterial endocarditis who had been treated with penicillin in doses ranging from 600,000 to 150,000,000 units administered over periods from three to 27 days. The abscesses were from 1 cm. to several centimeters in size and, because of the close anatomic relationships of the valve rings, frequently involved more than one of these structures. Rupture of the lesions into either the chambers of the heart, or the sinuses of Valsalva occurred in many instances. The microscopic appearance of the abscesses, with laminated thrombi in the center and occluded blood vessels in the adjacent tissue, suggested that they had originated from mycotic aneurysms of vessels in the valve rings. Increased vascularity of these structures subsequent to syphilitic aortitis, rheumatic heart disease, or atherosclerosis could represent a predisposing factor. It might therefore be significant that six of the 12 patients had syphilitic aortitis and that three showed calcification of the mitral ring. The valve ring abscesses were the only recognizable foci of persistent acute inflammation, while the endocarditis and its peripheral embolic lesions as well as the associated pneumonia and meningitis generally showed advanced healing. The authors believe that abscesses in the valve rings are observed more frequently now than in the past. The unsatisfactory therapeutic results in acute bacterial endocarditis may be related to these lesions. Antibiotic agents control the infection on the valves as well as in the peripheral embolic and other associated lesions but do not appear to penetrate the valve ring abscesses in sufficient concentration to prevent their progression.

Procaine Amide in Cardiac Arrhythmias.—Procaine amide (pronestyl®) hydrochloride, a synthetic analogue of procaine, has marked antiarrhythmic activity and is relatively stable in the body. It was administered orally or intravenously in doses of 0.4 to 1 gm. to 54 patients with premature contractions of ventricular origin. In each instance procaine amide suppressed the ectopic beats. On intravenous administration this occurred during or shortly after the injection; after oral administration there was usually a delay of 30 to 60 minutes. In 14 patients, procaine amide given at intervals of three to six hours successfully prevented the recurrence of ventricular extrasystoles for many weeks and in one patient for four months. The effect of procaine amide on ventricular tachycardia was studied in 15 patients. In 13 of

V 14
1951

these, administration of the drug orally, intravenously, or by both routes, was successful in that there was reversion to the cardiac rhythm that existed prior to the ventricular tachycardia. Six of the 13 patients previously had received no benefit even from toxic doses of quinidine. The remaining two patients were therapeutic failures; death due to ventricular fibrillation occurred during intravenous administration of the drug in both instances, and too rapid administration of the drug may have been responsible for the fatal result in one. The oral is preferable to the intravenous route, unless the patient is comatose or vomiting. Procaine amide did not establish normal rhythm in 24 patients with chronic auricular flutter and fibrillation. In two cases of recent auricular fibrillation, normal sinus rhythm followed the use of the drug. Only a few toxic effects, limited to the circulatory and gastrointestinal systems, were observed on administration of procaine amide in therapeutic doses. Further investigation is required to evaluate the place of this drug in the treatment of cardiac arrhythmias. It would appear to be a safer and more effective agent than quinidine in the management of ventricular tachycardia and ventricular extrasystoles.

Endocrinology, Springfield, Ill.

48:643-796 (June) 1951. **Partial Index**

Urinary 17-Ketosteroids in Chronic Liver Disease. T. L. Williams, A. Cantarow, K. E. Paschkis and W. P. Havens Jr.—p. 651.
Excretion and Distribution of I^{131} Following Administration of Physiologic Amounts of Labeled Iodide, Diiodotyrosine and Thyroxine in Rat. H. W. Johnson and A. Albert.—p. 669.
Effects of Various Steroids on Collection of Radioactive Iodine by Thyroid Gland of Rat. W. L. Money, L. Kraintz, J. Fager and others. —p. 682.
Steady State of Thyroidal Iodine. J. Dougherty, J. Gross and C. P. Leblond.—p. 700.
Presence of Free Iodinated Compounds in Thyroid and Their Passage into Circulation. J. Gross and C. P. Leblond.—p. 714.
Maintenance of Pregnancy in Pyridoxine-Deficient Rats When Injected with Estrone and Progesterone. M. M. Nelson, W. R. Lyons and H. M. Evans.—p. 726.
Progesterone of Blood in Menstrual Cycle of Monkey. F. E. Bryans. —p. 733.
Influence of Adrenal Cortex on Antibody Production in Vitro. S. Roberts and A. White.—p. 741.
Androgen Influence on Pituitary-Gonad Interrelationship. W. R. Breneman and R. C. Mason.—p. 752.
Inhibition of Hair Growth by Estrogens as Related to Adrenal Cortical Function in Male Rat. D. J. Ingle and B. L. Baker.—p. 764.
Cytochemical Study of Lipids in Sows' Ovaries During Estrous Cycle. W. L. Barker.—p. 772.

Journal of Allergy, St. Louis

22:291-386 (July) 1951

*Oral Cortisone Therapy in Allergic Diseases. S. Friedlaender and A. S. Friedlaender.—p. 291.
*ACTH in Ragweed Pollinosis: Histologic, Immunologic, and Clinical Study. B. Z. Rappaport, M. Samter, E. A. McGrew and others. —p. 304.
Effect of Adrenalectomy on Experimental Hypersensitiveness. L. H. Criep, L. D. Mayer and O. E. Lozano Menchaca.—p. 314.
Developments of Tolerance to Antihistamines: Study of Quantitative Inhibiting Capacity of Antihistamines on Skin and Mucous Membrane Reaction to Histamine and Antigens. T. B. Dannenberg and S. M. Feinberg.—p. 330.
Effect of ACTH and Cortisone on Certain Immunologic Mechanisms Including Reversed Anaphylaxis. C. E. Arbesman, E. Neter and L. F. Bertram.—p. 340.
Studies in Bacterial Allergy: V. Persistence of Desensitization, with Bacterial Haptens, of Guinea Pigs Sensitized Passively with Heterologous Serum. O. Swineford Jr. and R. J. Reynolds.—p. 350.
Major Electrophoretic Component of Giant Ragweed Extracts: Molecular Weight, Chemical and Biologic Characteristics. F. A. Stevens, D. Moore and T. Gelston.—p. 356.
Method of Sensitizing Guinea Pigs to Horse Serum that Eventuates in 100 Per Cent Mortality After Challenging. W. E. Barrett and B. N. Craver.—p. 361.
Granuloma of Space of Retzius with Eosinophilic Infiltration in Allergic Patient. H. B. Chapin, R. Chobot and S. A. Beisler.—p. 368.
Sensitivity to Sesame Seed. I. H. Uvitsky.—p. 377.

Orally Administered Cortisone in Allergies.—This report deals with the effects of orally administered cortisone acetate in allergic disease. The preparation was first used in cases of ragweed pollinosis in 1950. The improvement in some patients immediately following its use, together with a depressing effect on the blood eosinophil level in many instances, indicated that the orally administered hormone was readily absorbed from the gastrointestinal tract. In comparable dosage, it influenced allergic diseases in much the same manner as the saline suspension of cortisone given by intramuscular injection. A moderate depression in blood eosinophils is apparent four hours after a single 25 to 50 mg. oral dose. Maximum depressions are usually attained during the second to fourth day of therapy. A remarkable improvement occurred in six of the eight hay fever sufferers during the first 24 hours of oral cortisone treatment. Symptoms did not recur during the balance of the season in these six patients. The other two subjects failed to improve. The response to this therapy was good or fair in all but three of 17 patients with severe asthma. A dramatic clearing of dermatitis was observed in two of five patients during therapy. Another patient appeared to be partially improved, while the eczema in two others was not visibly altered during therapy. In the first of two patients with contact dermatitis it appeared that cortisone was responsible for the remission; in the second the part played by cortisone was doubtful. Cortisone was given orally also to four patients with severe urticaria and angioneurotic edema, but of the two in which the precipitating cause was not known, one showed only alleviation and in the other one, although relief was complete during treatment, recurrence was rapid. Improvement after oral administration of cortisone appears to be more rapid than with cortisone suspension administered by injection, but the therapeutic effect is also dissipated more rapidly. Chronic symptoms recur shortly after withdrawal of the hormone. Close supervision of the patient is necessary to avoid the side effects of adrenal hormone therapy.

ACTH in Ragweed Pollinosis.—Studies were made on 34 patients from the Allergy Clinic of the University of Illinois College of Medicine. Eight of the 34 were selected at random to receive placebo injections. Seven of these had asthma complicating their hay fever. The remaining 26, consisting of 20 with asthma and six with nasal allergy only, received corticotropin injections. Nine of 26 ragweed-sensitive patients who received 60 mg. of corticotropin daily for four days showed clinical improvement. None of the eight patients who received placebo injections were improved. Neither the reagin titer nor skin sensitivity to ragweed pollen were altered by treatment with corticotropin for the indicated period. Suggestive evidence was found that there is a correlation between the degree of skin sensitivity, the peripheral eosinophilia, and the tissue eosinophilia, but there was no change in histological characteristics attributable to the use of corticotropin. Edema and eosinophils in various stages of disintegration were found in pretreatment, post-treatment, and control biopsies.

J. American Med. Women's Assn., Nashville, Tenn.

6:209-248 (June) 1951

*Cutaneous Tumors of Childhood: Disparity Between Clinical Behavior and Histologic Appearance. S. Spitz.—p. 209.
Multiple Sclerosis. K. Constable.—p. 220.
Diagnosis of Uterine Abnormalities: Value of Hysterosalpingograms. A. J. Wittner.—p. 225.
Erythroblastosis: Experience at New York Infirmary During 1949. E. Coultas and S. Ferguson.—p. 228.
Adolescent Clinic. H. C. Fliegel and N. Lief.—p. 231.

Cutaneous Tumors of Childhood.—In children, approximately 25 benign tumors are seen to every malignant one and most of them are cutaneous. In the histiocytoses, which include Letterer-Siwe disease, Hand-Schüller-Christian syndrome, and eosinophilic granuloma of bone, there may be single or multiple cutaneous lesions. It is shown that the course of the histiocytoses may often be predicted better on clinical than on the histological appearance, and that, in general, the more diffuse the involvement of the skin, the more unfavorable the prognosis. Nevi are the commonest tumors in children. The benign nevus of children is far more cellular than the ordinary nevi of adults. A fatal outcome from pigmented tumors in children is rare. Pigmented lesions morphologically almost identical with the malignant melanomas of adults are found in children, but in the author's hospital only one of 13 of these "juvenile melanomas" was fatal. The clinical appearance of hemangiomas, which are generally evident at birth or shortly thereafter, depends on the size and degree of proliferation of vessels, their position in relation to the skin surface, and also the amount of blood circulating in them. In the capillary hemangioma the appearance is generally

that of the common "port wine stain"; the cavernous type may be deep, infiltrating subcutaneous tissue and muscle, or may appear in the skin as "strawberry marks." The so-called hypertrophic hemangioma may simulate a malignant tumor. The infiltration of these hemangiomas beyond the skin, together with their cellularity, has led frequently to the diagnosis of angiosarcoma. Moreover, the frequent hemorrhages in hemangiomas and the deposition of iron pigment simulate melanoma. Hemangiomas probably undergo spontaneous regression in many instances, because they are rare in adult life. Nevertheless, parents often insist that the "birthmarks" be obliterated. Until recently, the most popular treatment for hemangiomas was radium or roentgen irradiation. Now, the surface application of carbon dioxide snow or the injection of sclerosing agents is more acceptable, and these measures may be combined with surgical excision. Radium and x-rays may be cancerigenic.

Journal of Bacteriology, Baltimore

61:649-764 (June) 1951. **Partial Index**

Studies on Virulence of Bacteriophage-Infected Strains of Corynebacterium Diphtheriae. V. J. Freeman.—p. 675.
Rapid Phage Plaque Count Method for Detection of Bacteria as Applied to Demonstration of Internally Borne Bacterial Infections of Seed. H. Katznelson and M. D. Sutton.—p. 689.
Cultivation of Trypanosoma Cruzi. P. A. Little and J. J. Oleson.—p. 709.
Sensitivity of Freshly Isolated Bacteria to Neomycin. C. F. Clancy. —p. 715.
Studies with Microaerophilic Actinomycetes: I. Agglutination Reaction. J. M. Slack, E. H. Ludwig, H. H. Bird and C. M. Canby.—p. 721.
Specific Resistance of Tubercle Bacilli to Para-Aminosalicylic Acid and Sulfonamides. D. Yegian and R. T. Long.—p. 747.

Journal of Immunology, Baltimore

66:627-762 (June) 1951. **Partial Index**

Studies on Fractionation of Hemophilus Pertussis Extracts. R. B. Pennell and E. H. Thiele.—p. 627.
Experimental Hypersensitivity in Rabbit: Blood and Tissue Concentrations of Foreign Proteins Labeled with Radioactive Iodine and Injected Intravenously. H. Latta.—p. 635.
Improved Methods for Determining Antistreptolysin S. J. J. Robinson. —p. 653.
Studies on Treponemal Immobilizing Antibodies in Syphilis: I. Techniques of Measurement and Factors Influencing Immobilization. R. A. Nelson Jr. and J. A. Diesendruck.—p. 667.
Serological Epidemiology: Antibody Patterns in North Alaska Eskimos. J. R. Paul, J. T. Riordan and L. M. Kraft.—p. 695.
Tuberculin Reaction in Relation to Local Reaction to BCG Vaccine in Initially Vaccinated and in Previously Vaccinated Persons. J. D. Aronson and M. McGettigan.—p. 715.
Mathematical Theory of Immune Hemolysis. R. A. Alberty and R. L. Baldwin.—p. 725.
Statistical Methods in Immunology. H. C. Batson.—p. 737.

Journal Nat. Cancer Inst., Washington, D. C.

11:867-1080 (April) 1951. **Partial Index**

Observations on Effect of Progesterone on Carcinoma of Cervix. R. Hertz, J. K. Cromer, J. P. Young and B. B. Westfall.—p. 867.
Studies on Blood Supply of Tumors in Man. H. R. Bierman, K. H. Kelly, K. S. Dod and R. L. Byron Jr.—p. 877.
Mammary-Tumor Incidence in Female C3Hb Mice Following Long-Continued Gamma Irradiation. E. Lorenz, A. B. Eschenbrenner, W. E. Heston and D. Uphoff.—p. 947.
*Irradiation of Normal Human Hypophysis in Malignancy: Report of Three Cases Receiving 8,100-10,000 r Tissue Dose to Pituitary Gland. K. H. Kelly, E. T. Feldsted, R. F. Brown and others.—p. 967.
Spontaneous Biopsy. G. Adams.—p. 1025.

Irradiation of Normal Human Hypophysis in Malignancy.—Two 60-year-old women with disseminated mammary adenocarcinoma and one woman, 38, with disseminated melanoma were given 8,100 to 10,000 r tissue dose to the pituitary by means of a multiple-port coronal appliance. One patient is living one year later, and the others died three and 4.5 months after completion of the irradiation. No clinical or laboratory evidences of hypopituitary function were noted. The growth of the neoplasms was not affected. Both women with mammary carcinoma responded to androgens following completion of pituitary irradiation. Gross and microscopic examination of the pituitary and other endocrine organs showed no definite abnormalities in the two cases in which autopsy was performed. It is concluded that the normal adult human pituitary gland is resistant to x-ray irradiation in doses up to 10,000 r.

Journal of Neurosurgery, Springfield, Ill.

8:355-458 (July) 1951

Opto-Chiasmatic Arachnoiditis: Surgical Treatment and Results. G. H. Dickman, F. K. Cramer and A. D. Kaplan.—p. 355.
Syndrome in Acute Cervical Spine Injuries for Which Early Operation Is Indicated. R. C. Schneider.—p. 360.
*Diagnosis of Traumatic Intracranial Hemorrhage by Angiography. J. E. Webster, R. Dawson and E. S. Gurdjian.—p. 368.
Fibrous Dysplasia of Skull. W. Feiring, E. H. Feiring and L. M. Davidoff.—p. 377.
*Ventriculo-Ureterostomy. D. D. Matson.—p. 398.
Prefrontal Lobotomy for Relief of Pain: With Report of New Operative Technique. E. G. Grantham.—p. 405.
Diodrast Studies of Vertebral and Cranial Venous Systems to Show Their Probable Role in Cerebral Metastases. R. Anderson.—p. 411.
Experimental Studies of Effect of Coagulating Currents upon Brain When Applied to Intact Dura and Directly on Cortex. C. M. Caudill, G. A. Smith, L. A. French and others.—p. 423.
Experimental Method for Evaluation of Contrast Media Used in Cerebral Angiography. B. M. Bloor, F. R. Wrenn Jr. and G. J. Hayes.—p. 435.

Angiography in Traumatic Intracranial Hemorrhage.—The patients in this study were from the neurosurgical services of two Detroit hospitals, in which approximately 350 patients with head injury were admitted during a six month period. Of these, 160 had major cranial injuries consisting of fracture of the skull and brain contusions and laceration with or without fracture. Angiography was employed in those patients with major cranial injuries who either did not improve under conservative management or showed evidence of a "dynamic syndrome" of increasing stupor, new focal signs, and cardiac, thermal, or respiratory evidence of progressive cerebral dysfunction. Arteriographic studies were made on 30 patients with head injury who were suspected of having massive intracranial hemorrhage. With the patient under local or pentothal anesthesia, a percutaneous angiogram was obtained by the injection of 35% iodopyracet (diodrast®), and anteroposterior and lateral studies were made. Typical vascular patterns were found to distinguish the subdural, epidural, and intracerebral hematomas. Angiography was found to be reliable and superior to the more complicated and possibly inaccurate exploratory trephine. Angiography involves certain risks: the patient has to be moved for the roentgen studies; the use of pentothal anesthesia for the uncooperative patient involves a further risk; and the time consumed in taking the arteriogram must also be taken into consideration. In deciding whether these risks are justified in the interest of a prompt and accurate diagnosis, it must be considered that the use of ventriculography and multiple exploratory burr openings with the patient under local or general anesthesia with or without injection of air also have disadvantages and may lead to inaccurate localization. Arteriography appears to be useful. More experience will give it its proper place among the diagnostic procedures for head trauma.

Ventriculo-Ureterostomy.—Drainage of spinal fluid from the lumbar subarachnoid reservoir into the ureter by means of a small-caliber polyethylene tube was reported in 1949. In April, 1950, the use of ventriculo-ureterostomy in patients who had obliteration of the spinal as well as the intracranial surface subarachnoid spaces was reported. In this operation the ureter is identified and divided at its junction with the renal pelvis in such a way as to leave its nerve and blood supply intact; the kidney is removed, and the wound is left open. Next, a burr hole is made in the posterior temporo-occipital area, and the dura is incised. An incision through the skin is then made about 2 cm. lateral to the midline low in the cervical region; a similar incision is made over the 12th rib, and one or more in between these two. A length of polyethylene tubing sterilized with benzalkonium (zephiran®) chloride is passed from one incision to another through subcutaneous tunnels. The tube is introduced into the lumen of the lateral ventricle. From the lowermost stab incision, over the 12th rib, the tubing is tunnelled through the paraspinal muscles to the retroperitoneal space. When a free flow of ventricular fluid has been established through the tube, approximately 6 cm. of the tube is introduced into the lumen of the ureter. This operation has been performed in four patients. There was increased intracranial pressure preoperatively. In each instance the pressure has been normal or low from the moment the operation was completed. These patients have now been followed for two, four, eight, and fifteen

V 14
1951

months. There has been no evidence of meningitis, tissue reaction to the long polyethylene tube, or recurrent increased pressure. The three infants have been given 2 gm. of added table salt per 24 hours. The fourth patient, a boy of 14, continued to improve for six months following discharge from the hospital one month after he had undergone ventriculoureterostomy. Then his condition deteriorated, and he died. If in infants and younger children new pathways for circulation and absorption of spinal fluid do not develop as growth proceeds, the tube will need to be replaced when it becomes too short. This procedure may be particularly appropriate to older patients in whom the subarachnoid pathways have been obliterated by a pyogenic or aseptic meningeal reaction.

Maine Medical Association Journal, Portland

42:213-248 (July) 1951

Infectious Mononucleosis. J. B. Dana.—p. 213.
Response of Eosinophilia in Allergic States. F. A. Spellman.—p. 218.
Report on Lobotomy Program. I. Zeltzerman.—p. 220.
Unusual Case of Desmoid Tumors of Abdominal Wall. E. L. Foote and S. M. Anderson.—p. 222.
Syndrome of Superior Vena Cava Obstruction with Report of Case. J. F. Loughlin.—p. 225.

Medical Annals of District of Columbia, Washington

20:355-408 (July) 1951

Comparative Utilization of Invert Sugar and Dextrose in Nondiabetic Human Beings. J. J. Weinstein.—p. 355.
Edrisal for Relief of Symptoms Associated with Menstruation. R. L. Wells.—p. 360.
Antihistaminic Drugs—Getting Optimum Benefit from Their Use. A. Seltzer.—p. 362.
Diagnostic Methods in Liver Disease. H. J. Zimmerman.—p. 366.
Follow-Up and Guidance Treatment of Peptic Ulcer. W. T. Gibb Jr. —p. 372.

Military Surgeon, Washington, D. C.

109:1-90 (July) 1951. **Partial Index**

Antibiotics in Treatment of Compound Fractures. J. A. Key.—p. 1.
The 24th Division Medical Battalion in Korea. W. H. Thornton.—p. 11.
Congenital Anomalies of Gallbladder and Ducts. S. A. Rachlin.—p. 20.
Plantar Heel Pain Treated by Countersinking Osteotomy. A. A. Michele and F. J. Krueger.—p. 25.
Evaluation of Ethylene Oxide as Sterilizing Agent for Field Use. L. P. Eisman.—p. 29.
Poliomyelitis: Abnormal Reaction of Nerve Tissue to Electronegative-Charged Poliomyelitis Virus. R. de Rohan Barondes.—p. 43.

New England Journal of Medicine, Boston

244:959-998 (June 28) 1951

*Radiation Damage to Normal Tissues in Diagnosis and Treatment of Nonmalignant Conditions and Its Surgical Repair. E. M. Daland. —p. 959.
Diagnostic Implications of Pericardial, Pleural and Pulmonary Involvement in Cardiovascular Disease. L. Wolff.—p. 965.
Sprain-Fractures of Anterior Lip of Os Calcis. C. H. Bradford and I. Larsen.—p. 970.
Cyclic Premenstrual Congestive Heart Failure. M. G. Sherer and W. E. R. Greer.—p. 973.
Pancreatic Surgery (Concluded). R. B. Cattell and K. W. Warren. —p. 975.

Radiation Damage.—This paper deals with the unexpected and unwanted effects of irradiation in the treatment of benign conditions. Low-voltage x-ray or unscreened radium has been the offender in the greatest number of cases of irradiation damage to the skin, particularly in those leading to cancer. With high-voltage x-ray there is usually total destruction, and the problem of causing cancer is probably not involved. The first group of cases cited to illustrate unwanted and unexpected results from irradiation concern lesions in physicians using irradiation. The second group comprises cases in which patients were damaged by fluoroscopy. The cases of the third group, in which bones were damaged, emphasize the fact that irradiation should never be applied over a growing epiphysis, as further growth will be stopped. A fourth group illustrates damage from treatment of psoriasis. The fifth group comprises cases in which damage resulted from the use of x-rays that had been applied to obtain a depilatory effect. Damages resulting from irradiation treatment of fungus diseases and of plantar warts comprise groups six and seven in this report. Cancer resulted in some of these cases. The author stresses that irradiation should not be used when surgery will give as good a result. Irradiation should never be used in the treatment of benign moles. In infections, skin diseases, or in plantar warts, it should be used only by an expert. It is never safe to use irradiation a second time. Patients should not apply to various physicians for further treatment. Care should be taken that the irradiated area does not become traumatized or infected. In the surgical treatment of tissues damaged by irradiation as much damaged tissue as possible should be removed, down to normal structures. If no fat remains, thin skin grafts will not be as satisfactory as pedicle flaps containing fat. Wounds from removal of radiated tissue should never be left open to granulate, because they will soon be covered over by a "scum" of avascular pseudohyalinized tissue. Such wounds should be covered at once.

245:1-38 (July 5) 1951

*Diabetic Acidosis: Results of Treatment in 67 Consecutive Cases. R. Harwood.—p. 1.
Carbon-Dioxide Intoxication in Emphysema: Emergency Treatment by Artificial Pneumoperitoneum. J. J. Callaway and V. A. McKusick. —p. 9.
Bacitracin in Dermatology: Its Effectiveness in Topical Therapy. E. F. Finnerty Jr.—p. 14.
*Cutaneous Toxicity and Therapeutic Effectiveness of Penicillin O. R. R. Marsh and I. G. Tillotson.—p. 17.
Radiology in Bone Pathology. J. Hanelin and L. L. Robbins.—p. 20.

Diabetic Acidosis.—Fifty-seven patients, 28 men and 29 women between the ages of 14 and 75, with severe or moderate diabetic acidosis were admitted to the Massachusetts General Hospital from November, 1944, to June, 1950. Eight patients were admitted twice in diabetic acidosis and one patient had three admissions, making a total of 67 admissions. Only one patient died, while there were seven deaths in 35 patients with diabetic acidosis admitted to the hospital in the period January, 1942, to November, 1944. In 66 of the 67 instances the blood sugar had dropped to 250 mg. per 100 cc. or lower in the first 24 hours of treatment. In all cases, significant ketosis had been relieved within 24 hours. Most of the patients were much improved in all respects at the end of this time. The condition of at least 10 patients remained poor for another one to three days, despite normal blood sugar and carbon dioxide levels. Most important causes of the lowered mortality rate were the teamwork of the hospital staff and the over-all medical care, which included prompt initiation of treatment, constant vigilance for and treatment of complications such as anuria, oliguria, and disturbances of cardiac rhythm, frequent consultation, and constant attendance by a physician until all possible danger was passed. Next in importance was the administration of large doses of insulin, made possible by having 24 hour laboratory service for blood sugar determinations. The average total dose of insulin in the first 24 hours was 1,280 units, not including one patient who received 17,000 units in one day and on another occasion 10,500 units. Only eight patients had hypoglycemia as a result of this treatment. In all but one instance the hypoglycemia was easily controlled by intravenous administration of dextrose. The institution of oral feeding at the earliest possible moment and care in the selection and administration of parenterally given fluids also contributed to the favorable results.

Toxicity and Effectiveness of Penicillin O.—Fifty-two hospitalized patients, 26 men and 26 women, were given crystalline penicillin O potassium ("cer-o-cillin") in isotonic sodium chloride solution. Except in two patients who received the drug by aerosol inhalation, penicillin O was administered by intermittent intramuscular injection in doses ranging from 200,000 to 2,400,000 units daily for at least five days unless a sensitivity reaction occurred. Total doses ranged from 300,000 to 32,840,000 units. In four of the 52 patients, all men, cutaneous reactions developed. The manifestations in three patients consisted of maculopapular eruptions over the upper thighs, buttocks, trunk, and arms and, in the fourth patient, of facial and periorbital edema and a generalized maculopapular rash. Two of these four patients had shown sensitivity to penicillin G during previous administration, while the other two patients had had no previous exposure to penicillin. Penicillin O was tolerated without reaction by three patients in whom penicillin G had

caused toxic skin eruptions. The results of this study do not permit any precise statement concerning the relative allergenic potency of penicillins G and O, but contrary to previous reports it is apparent that penicillin O is capable of producing allergic reactions. The effect of treatment with penicillin O was evaluated on 28 proved or suspected bacterial infections. The drug was an effective antibiotic agent in nine patients with pneumococcic pneumonia, in one patient with pneumococcic meningitis, in two patients with acute tonsillitis due to group A beta-hemolytic streptococci, and in one patient with coagulase-positive Staphylococcus aureus bacteremia. These results indicate the clinical effectiveness of penicillin O in the commoner infections due to gram-positive cocci. The experience in one case suggested that penicillin O may be the drug of choice in selected cases in which an organism is actually more sensitive to it than to penicillin G.

New Jersey Medical Society Journal, Trenton

48:301-350 (July) 1951

The Urologist Looks at General Practice. E. Hess, R. B. Roth and A. F. Kaminsky.—p. 310.
Differential Diagnosis of Jaundice. F. W. Konzelmann.—p. 316.
Chlorophyll as Deodorizer of Lochial and Menstrual Odors. F. S. Taber.—p. 321.
Penicillin Therapy of Typhoid Fever. N. H. Schimmel, W. V. Matteucci and W. P. Boger.—p. 323.
Modern Concepts of Anovulatory Cycle. W. Steinberg.—p. 326.
Acetoxypregnenolone in Gastro-Intestinal Carcinoma with Metastases. N. V. S. Myers.—p. 330.
Education for Health. R. B. Marin.—p. 332.

New Orleans Medical and Surgical Journal

104:1-42 (July) 1951

SYMPOSIUM ON PEDIATRIC SURGERY

Introduction. J. E. Strange.—p. 1.
Some Common Orthopedic Problems of Childhood. L. C. Schlesinger.—p. 5.
Pediatric Surgery—Roentgenology. M. D. Teitelbaum.—p. 11.
Matting Syndrome Type of Intestinal Obstruction with Review of 60 Cases of Intestinal Obstruction. H. Mahorner.—p. 17.
Congenital Hemolytic Jaundice: Report of Two Cases. L. R. Cabiran and W. Fisher.—p. 22.
Development of Electric Shock Therapy at East Louisiana State Hospital. L. F. Magruder.—p. 25.
Multiple Large Fibromyoma of Cervical Stump: Case Report. C. G. Johnson and M. D. Claiborne.—p. 27.
Acid-Fast Nocardia Causing Erroneous Diagnosis of Tracheobronchial Tuberculosis. W. J. Mogabgab and J. L. Floyd.—p. 28.

New York State Journal of Medicine, New York

51:1457-1566 (June 15) 1951

Manifestations of Hypoglycemia in Clinical Practice. N. R. Occhino.—p. 1499.
Leiomyosarcoma of Uterus Following Radiation for Hemorrhage from Submucous Fibromyoma. I. Smiley and J. W. Tandatnick.—p. 1504.
*Sickle Cell Anemia: Clinical Study with Emphasis on Cardiac Status. R. S. Aaron.—p. 1511.
Fetal Mortalities in Cesarean Sections. H. R. Lichtfield, S. D. Sternberg, C. Hoffman and R. Turin.—p. 1517.
*Prophylaxis of Cancer of Prostate, Penis, and Cervix by Circumcision. A. Ravich and R. A. Ravich.—p. 1519.
Treatment of Opiate Addiction with Intravenous Alcohol. G. P. Child.—p. 1521.
Nervous System Manifestations in Pernicious Anemia: Results of Treatment with Liver Preparations as Compared with B_{12} Therapy. A. Slepian and S. L. Vaughan.—p. 1524.

Sickle Cell Anemia.—Eighty-five patients, 40 males and 45 females, between the ages of 8 months and 52 years with sickle cell anemia were studied with particular reference to the cardiac status. All patients were Negroes, except one 6 year old boy, born in Italy. In 75 of the 85 patients there was extremity pain involving joints, long bones, and muscles. Abdominal pain and crises were present in 45. Fifteen patients had chest pain, and 14 had exertional dyspnea. Of 61 patients in whom cardiac x-ray studies were obtained, 49 showed evidence of cardiac enlargement. Cardiac murmurs were present in 65 patients, and other auscultatory abnormalities in 32. Electrocardiographic changes were observed in 43 of the total of 91 electrocardiograms obtained on 56 patients. The commonest abnormal finding was depression of the S-T segment. Cardiac changes were so frequent that it was advisable to consider sickle cell anemia in all Negro patients with heart disease. The coexistence of rheumatic heart disease in sickle cell anemia is not so rare as formerly supposed. Four patients had clinical rheumatic heart disease, and two other cases were confirmed at necropsy. The difficulty of confirming the diagnosis of rheumatic heart disease in sickle cell anemia is emphasized. The most helpful observations are left auricular enlargement, electrocardiographic finding of right axis deviation or auricular flutter or fibrillation, and an increased fibrinolysin titer. Nine of the 85 patients died. Necropsy was performed on seven. The presence of hemosiderin in various organs was uniformly noted.

Circumcision for Prophylaxis of Cancer of Sex Organs.—There is much evidence indicating that there is a much lower incidence of carcinoma of the penis among the male members of races that practice circumcision and of carcinoma of the cervix uteri among female members of the same ethnic groups. Of 1,407 patients operated on by one of the authors for prostatic obstruction, 1,275 were Jews, all of whom had been circumcised in early infancy. Of these, 23 (1.8%) had prostatic carcinoma. There were 132 non-Jews, only a very small number of whom had been circumcised. Of the patients in this group, 25 (19%) had prostatic carcinoma. It would appear that circumcision during early infancy is most practicable and most effective as a prophylactic measure against cancer of the prostate, penis, and cervix uteri. The value of circumcision evidently derives from the greater resulting cleanliness of the glans penis and the complete elimination of accumulated smegma. The relationship of carcinoma of the prostate, penis, and cervix to smegma lends support to the virus theory of cancer. The carcinogenic agent carried by smegma may act locally to produce penile and cervical cancer and may spread via the urethra to the prostate, which may act as a reservoir for contamination of the lacerated cervix during sexual intercourse. In this way the agent may give rise to both cervical and prostatic cancer by transmission. Of all annual cancer deaths in the United States, 25,000 (one-eighth) are due to cancer of the prostate, cervix, and penis. Almost all these deaths occur in persons from groups that do not practice circumcision. These figures indicate the importance of circumcision as a public health measure.

51:1567-1662 (July 1) 1951

PANEL DISCUSSION: CIVIL DEFENSE

Organization and Operation of Medical Defense Activities. H. E. Hilleboe.—p. 1603.
As New York City Sees It. M. Kogel.—p. 1607.
Emergency Preparedness Program of Medical Society of State of New York. J. J. Masterson.—p. 1612.
Place of Hospital in Civil Defense. E. D. Babbage.—p. 1614.

PANEL DISCUSSION: DOCTOR, HOSPITAL, AND COMMUNITY

Hospital Administrator's Viewpoint. V. Reed.—p. 1617.
General Practitioner's Viewpoint. M. Cheplove.—p. 1620.
Function of Health Council at State and Local Levels. T. D. Dublin.—p. 1622.
Selected Clinical Observations of Effect of Cortisone and ACTH as Guide for Individualized Dosage. W. B. Rawls and V. C. Ancona.—p. 1625.
*Clinical Use of Iodothiouracil, New Antithyroid Compound: Preliminary Report. J. C. McClintock and J. J. A. Lyons.—p. 1633.

Clinical Use of Iodothiouracil.—A preliminary report is presented on 107 patients with various types of goiter who were treated on an outpatient basis with 5-iodo-2-thiouracil sodium salt in doses varying from 100 to 800 mg. daily. The optimum dose appears to be 300 mg. daily in divided doses. Clinical improvement, as indicated by a drop in pulse rate, weight gain, loss of subjective symptoms, and improvement in objective signs, was the criterion for the efficacy of the drug and also determined the length of medical treatment or the time of operation. Many of the patients with substernal or large nodular goiters with pressure symptoms obtained relief due to a reduction in the size of the thyroid gland brought about by the drug. A slight goitrogenic effect was observed in a few patients with toxic diffuse goiters, especially those treated for six or more months. Most patients were adequately prepared by iodothiouracil for surgery in six to eight weeks. Thyroidectomy was performed on 70 patients, and 15 more were scheduled for operation. Subtotal thyroidectomy was less difficult in patients prepared by iodothiouracil as compared with other methods of treatment. Appar-

V 14
1951

ently, in only three patients with toxic diffuse goiter was there a medically produced remission. The postoperative course was uneventful in all patients. Toxic effects from the use of the drug appear to be less severe than those associated with other antithyroid agents. Drug fever, observed in two patients, was the most serious toxic manifestation. Three patients complained of nausea and two of arthralgia. Although no case of granulocytopenia was observed, the authors urge caution when this compound is used and recommend frequent observation of the patient and repeated blood cell counts. Preoperative treatment with iodothiouracil may be the method of choice for large nodular goiters and substernal thyroid enlargements, as well as for diffusely hyperplastic thyroid glands.

North Carolina Medical Journal, Winston-Salem

12:209-252 (June) 1951

Anesthesia in Thoracic Surgery. L. V. Hand, F. J. Audin and E. K. Atkinson.—p. 209.
Role of Professional Anesthetist in Case of Cardiac Tamponade. A. T. Hamilton.—p. 219.
Congenital Tracheo-Esophageal Fistula. A. B. Cecil Jr. and W. C. Sealy.—p. 220.
Hemorrhage from Peptic Ulceration in Meckel's Diverticulum: Report of Case Occurring in an Adult. W. B. McCutcheon, R. D. Baxley and J. J. McDonald.—p. 224.
Continuous Caudal Analgesia in Vaginal Delivery: Report of 702 Cases. R. J. Ruark.—p. 226.
Concept of Psychosomatic Medicine. O. R. Yost.—p. 229.
Iatrogenic Disease. J. H. McNeill.—p. 231.
The Meaning of Hippocrates in the Medical World of Today. F. R. Taylor.—p. 234.

Pediatrics, Springfield, Ill.

7:741-892 (June) 1951

*Poliomyelitis Occurring After Antigen Injections. G. W. Anderson and A. E. Skaar.—p. 741.
Galactosemia and Its Relation to Laennec's Cirrhosis: Review of Literature and Presentation of Six Additional Cases. E. H. Townsend Jr., H. H. Mason and P. S. Strong.—p. 760.
Volumetric and Microscopic Pattern of Bone Marrow in Normal Infants and Children: III. Histologic Pattern. P. Sturgeon.—p. 774.
Role of Hyaline Membranes, Blood, Exudate, Edema Fluid and Amniotic Sac Contents in Preventing Expansion of Lungs of Newborn Infants. F. C. Behrle, D. M. Gibson and H. C. Miller.—p. 782.
*Prevention of Tuberculosis Among Children Without Use of BCG. J. A. Myers.—p. 793.

Poliomyelitis Following Antigen Injections.—Anderson and Skaar analyzed epidemiological case histories obtained about three months after onset of the illness in 2,709 persons who had poliomyelitis during the 1946 outbreak in Minnesota. The inquiry included questions about injections or immunizations received. It was impossible to determine precisely whether the attack rate of poliomyelitis was higher among recently immunized persons. However, in patients who had received some antigen during the month prior to onset there was a high degree of correlation between the site of paralysis and site of injection. In such patients there was a tendency to a different distribution of paralysis and a severer paralysis as compared to children immunized two to six months previously, immunized in previous years, or never immunized. The time intervals between the date of injection and onset of illness suggests some relationship other than chance. There is no evidence that the antigen influences or in any way conditions the response to poliomyelitis virus for longer than one month. Since immunization is an elective procedure, it can well be delayed during outbreaks of poliomyelitis; but there is no suggestion that the postponement should be more than temporary.

Prevention of Tuberculosis Without BCG.—Approximately 50% of grade school children had primary tuberculosis as manifested by the tuberculin reaction in Minnesota in 1920. Clinical tuberculosis was not uncommon among infants and children, and many adolescents died from it. The disease was prevalent among cattle, and many children contracted the disease from cattle. Various methods of immunization against tuberculosis, including BCG, were studied, but none proved adequate. The method adopted consisted of dealing with tuberculosis as a contagious disease, by isolating and treating patients with open tuberculosis in hospitals and sanatoriums. Tuberculin testing surveys were conducted, and the reactors examined. Those with no clinical disease at the time of examination were periodically examined. Veterinarians almost eradicated tuberculosis from dairy herds. These measures resulted in a rapid reduction of tuberculosis. Morbidity rates decreased so that in sanatoriums with long waiting lists in the 1920's, there were 300 to 600 vacancies in the early 1940's, and in 1950 some smaller institutions were closing. The incidence of primary tuberculosis among grade school children in the largest city decreased from 50% in 1920 to 8% in 1944. There are now many village and rural schools in which no child reacts to tuberculin. The author does not now use nor recommend the use of BCG because: 1. The results obtained with BCG anywhere have never approached those resulting from the aforementioned fundamental methods. 2. In places where BCG has been added to these methods, the mortality rate from tuberculosis has been decreasing, but this is attributed to the fundamental methods rather than to BCG. 3. The tuberculin test, the best diagnostic agent, is nullified by BCG. 4. Harmlessness of BCG has not been proved; it may be harmful, since it kills silicotic animals and those on deficient diets. 5. Attacks of primary or reinfection types of tuberculosis by virulent tubercle bacilli do not result in dependable immunity. Therefore, attempts to produce immunity by establishing lesions with BCG are poorly founded.

Postgraduate Medicine, Minneapolis

10:1-94 (July) 1951

Case Selection and Practical Points on Administration of ACTH. S. H. Armstrong.—p. 1.
Surgical Management of Obstructing Lesions of Esophagus. H. D. Adams. —p. 6.
Annotated Bibliography on Sludged Blood. M. H. Knisely.—p. 15.
Treatment of Arteriosclerotic Popliteal Aneurysm by Lumbar Sympathectomy and Extirpation at Same Operative Session. C. S. MacCarty, J. M. Janes and E. V. Allen.—p. 25.
Treatment of External Pancreatic Fistula. J. M. Miller, M. Ginsberg and R. J. Lipin.—p. 31.
Carcinoma of Colon. W. H. Cole.—p. 35.
Bronchial Asthma in Farm Population. L. Unger.—p. 42.
Surgery of Large Bowel in Infancy and Childhood. V. C. David.—p. 57.
Care of the Premature Infant. J. H. Githens Jr. and L. O. Lubchenco. —p. 62.
Management of Ophthalmologic Problems in Children. R. C. Gamble. —p. 65.

Radiology, Syracuse, N. Y.

57:1-156 (July) 1951

*Reversibility in Ulcerative Colitis: Clinical and Roentgenologic Observations. J. B. Kirsner, W. L. Palmer and A. P. Klotz.—p. 1.
Agenesis of Corpus Callosum; Lipoma of Corpus Callosum: Their Roentgen Recognition and Differentiation. A. Sheinmel and L. R. Lawrence. —p. 15.
Roentgen Therapy of Primary Neoplasms of Brain. J. R. Freid and L. M. Davidoff.—p. 25.
Studies with Radioiodine: I. Function and Rate of I^{131} Uptake of Thyroid. E. R. Miller, M. E. Dailey, A. V. Holmes and others.—p. 37.
*Spontaneous Rupture of Esophagus, with Report of Five Cases. C. A. Priviteri and B. B. Gay Jr.—p. 48.
Left Ascending Aorta with Right Arch and Right Descending Aorta. H. L. Abrams.—p. 58.
Chronic Intermittent Arteriomesenteric Occlusion of Duodenum. J. Romagosa and L. J. Menville.—p. 63.
Duodenum Inversum: Report of Two Cases. E. C. Rozek and C. M. Graney.—p. 66.
Microradiography: Its Application to Study of Vascular Anatomy of Certain Organs of Rabbit. W. S. Tirman, C. E. Caylor, H. W. Banker and T. E. Caylor.—p. 70.
Color as Teaching Aid for Diagnostic Roentgenology. E. L. Pirkey, J. E. Parker Jr. and F. W. Shook.—p. 81.
Dependence of Human Skin Reaction Produced by Ionizing Radiation upon Type of Radiation: Some Speculations. C. W. Wilson.—p. 83.
Experimental Procedures for Simultaneous Exposure of Large Numbers of Animals to Total Body X-Radiation. W. H. Chapman, E. P. Cronkite, F. W. Chambers Jr. and J. E. Morgan.—p. 90.
Influence of Infection on Hematological Effects and Mortality Following Mid-Lethal Roentgen Irradiation. L. R. Bennett, P. E. Rekers and J. W. Howland.—p. 99.

Reversibility in Ulcerative Colitis.—The improvement and complete healing of ulcerative colitis observed in a representative group of 24 medically treated patients demonstrates the reversibility of the disease. Many of these patients had been seriously ill, requiring frequent and prolonged hospitalization. The morphological changes, as reflected by x-ray, were extensive in most

instances. Subsidence of the clinical and proctoscopic manifestations of mild ulcerative colitis is not uncommon, but reversal of the contracted and rigid colon to normal, the passage of well-formed stools despite extensive scarring, and the disappearance of rectal strictures, as noted in two cases, seem remarkable. The treatment was prolonged and included bed rest, sedation, restoration of nutrition, the control of infection, and psychotherapy. In many instances it seemed that patients successfully passing the initial critical phases of the illness dealt with recurrences in an increasingly effective manner; perhaps "resistance" or "immunity" develops in ulcerative colitis, as in other diseases. Many more patients undoubtedly can be restored to health with earlier diagnosis and prompt, adequate treatment. Corticotropin (ACTH) may prove to be a valuable adjunct to medical therapy in promoting the healing of ulcerative colitis. The prompt subsidence of symptoms in an additional 30 patients thus far treated with corticotropin further emphasizes the reversibility of the disease.

Spontaneous Rupture of Esophagus.—Including the five examples presented here, the world literature contains records of 92 cases of spontaneous rupture of the esophagus. The term is applied to a complete tear involving all layers of the wall of a previously normal esophagus. This excludes incomplete tears and rupture at the site of neoplasm, peptic ulcer, corrosive esophagitis, other forms of esophageal inflammation, aneurysms, perforation from instrumentation, biopsy, or trauma due to foreign bodies. Esophageal tears are from 2 to 8 cm. in length and are usually vertical and on the posterolateral wall. Tears have followed weight-lifting, defecation, administration of anesthesia, and roentgen examination of the gastrointestinal tract. In a typical case a previously healthy person, having recently eaten a large meal or indulged heavily in alcoholic beverages, starts vomiting or retching; sudden exquisite epigastric or substernal pain develops, followed by severe shock. Physical examination may reveal hydrothorax or hydropneumothorax, and emphysema in the neck or chest wall. Roentgenograms of the chest confirm the presence of hydrothorax or hydropneumothorax, and they may show widening of the mediastinum and/or mediastinal and cervical emphysema. Of the five patients here reported on, only one recovered. In only one of the five patients was the esophageal rupture recognized before operation, and in another it was suspected.

South Carolina Medical Assn. Journal, Florence

47:229-270 (July) 1951

Medical Morality. W. R. Tuten.—p. 229.
Treatment of Infantile Eczema. K. A. Riley.—p. 232.
Adequate Diagnosis of Vulval Lesions. J. R. Sosnowski.—p. 235.
Observations on Effects of Priodax on Blood Sugar and Non-Protein Nitrogen. R. W. Lominack.—p. 237.
Heredity in Disease: Review. D. Symmers.—p. 238.
Carcinoma of Thyroid. C. B. Hanna and W. H. Prioleau.—p. 241.

South Dakota J. Med. & Pharmacy, Sioux Falls

4:131-150 (June) 1951

Office Diagnosis and Treatment of the Sterile Couple for the General Practitioner. C. A. Stern.—p. 131.
Newer Therapeutic Agents. E. Parry.—p. 136.
Some Considerations on Use of Professional Social Case Work by the Physician in Problems Involving Welfare of Children. Rev. B. A. Gjenvick.—p. 138.

Tennessee State Medical Assn. Journal, Nashville

44:219-270 (June) 1951

Viral Hepatitis—Diagnosis and Treatment. L. B. Myhr.—p. 219.
*"Condemning 'Poison-Ivy' Injections." R. N. Buchanan Jr.—p. 226.
Endocrine Treatment of the Climacteric. O. L. Davidson.—p. 231.
Adenomatous or Nodular Goiter. G. T. Howard Jr.—p. 235.

Condemning Poison-Ivy Injections.—Previous reports on the therapeutic and prophylactic use of injections of poison-ivy extracts show that there is a difference of opinion on the value of such extracts. Buchanan, although he does not use them, has seen many patients who have been harmed by such injections. The untoward reactions that follow the intramuscular administration of poison-ivy preparations are generalized urticarial and erythema multiforme lesions, induration at the site of the injection, accentuation of the itching, and worsening of the original dermatitis. He stresses that injection of poison-ivy extracts is ineffective in the treatment of poison-ivy dermatitis and may be harmful. For prophylaxis oral desensitization may be more effective and is safer, in that untoward reactions are milder.

Texas State Journal of Medicine, Fort Worth

47:457-542 (July) 1951

Choice of Antimicrobial Agents in Therapy of Infections. D. Schrum and E. M. Yow.—p. 462.
Pyogenic Cutaneous Infections in Children: Their Modern Management. C. S. Livingood.—p. 469.
*Evaluation of ACTH and Cortisone in Treatment of Allergic Diseases. G. J. Seibold.—p. 475.
Treatment of Chronic Alcoholism with Antabuse. J. A. Smith, W. T. Brown and P. S. Dardin.—p. 477.

ACTH and Cortisone in Allergy.—Many hypersensitive states, such as status asthmaticus, urticaria, serum sickness, hay fever, and other allergies, have yielded symptomatically to the administration of corticotropin (ACTH) and cortisone. Lasting relief in the treatment of allergic disorders has not been the usual result in the author's experience. In 27 allergic patients treated with corticotropin and in 14 patients treated with cortisone, both drugs produced best results in diseases of short duration, such as penicillin reactions. The next most satisfactory improvement was noted in patients with severe asthma, but, unless maintenance therapy was given, recurrence of symptoms was noted in three weeks. However, all recurrences were more responsive to symptomatic therapy such as epinephrine, ephedrine, and aminophylline. The itching of eczema was promptly reduced or counteracted, except in two patients, who became progressively worse. Seasonal hay fever was greatly improved. Therapy given from four to six days carried several patients through the remainder of a rather severe season. None of the patients with seasonal hay fever had responded to the various antihistaminic drugs. Poorest results were observed in atopic eczema in the very young. In general, relief is temporary. Until it has been proved that these potent drugs will not cause permanent damage they should be used with utmost caution.

U. S. Armed Forces Med. J., Washington, D. C.

2:707-860 (May) 1951. Partial Index

SYMPOSIUM ON AMYLOIDOSIS

I. Introduction. D. J. Cracovaner.—p. 707.
II. Classification and Pathology of Amyloidosis. S. H. Rosen.—p. 709.
III. Secondary (Typical) Amyloidosis in Quadriplegics: Report of Four Cases. M. S. Bowman and E. S. Redfield.—p. 715.
IV. Primary (Atypical) Localized Amyloidosis of Heart. J. M. Smith.—p. 723.
V. Atypical Amyloidosis in Multiple Myeloma: Case Report. F. J. McMahon.—p. 727.
VI. Amyloidosis Mixed Primary (Atypical) and Secondary (Typical) Types with Renal Insufficiency in Case of Chronic Pulmonary Tuberculosis. E. S. Redfield.—p. 733.
VII. Clinical Considerations and Treatment of Amyloidosis. M. B. Rosenblatt.—p. 739.
Carbon Tetrachloride Nephrosis: Report of Patient Treated Conservatively. I. L. Hoffman and R. R. Grayson.—p. 755.
Successful Embolectomy for Saddle Embolus of Abdominal Aorta. J. J. Wells and E. V. Denneen.—p. 763.
Exposure (Open) Treatment of Burns. E. J. Pulaski, C. P. Artz, J. R. Shaeffer and others.—p. 769.
Military Preventive Medicine: Keystone of Military Strength. J. S. Simmons.—p. 785.
*Acute Lateral Ankle Sprains Treated by Sural Nerve Block. J. B. Hutcheson.—p. 799.
Surgery in Nonacute Diseases of Pancreas. R. J. Coffey and J. J. Blumberg.—p. 803.
Clinical Uses of Hexachlorophene. C. P. Artz, E. J. Pulaski and J. R. Shaeffer.—p. 819.
Neuropsychiatry: Organization and Administration in Office of Surgeon General, 1948-1950. J. M. Caldwell.—p. 827.
Mirror Laryngoscopy. H. R. Morse.—p. 833.

Lateral Ankle Sprains Treated by Sural Nerve Block.—In this improved method of procaine injection for acute lateral ankle sprains, the injection is made at a point about 3 in. (7.62 cm.) above the external malleolus and over the posterolateral border

V 14
1951

of the fibula. A wheal is raised with procaine through a 26-gage needle. A 2 in. (5.08 cm.) 22-gage needle is substituted and is directed inward and posteriorly just beyond the posterolateral border of the fibula. The needle is inserted until paresthesia, running downward from the site of injection over and above the external malleolus and dorsolateral aspect of the foot, is experienced. Additional procaine is withheld until this point is reached, and then about 7 cc. of 2% procaine is injected and the needle is withdrawn. The plunger should be pulled back before injection to ascertain that the needle is not in the small saphenous vein. After 10 minutes the skin from the point of injection down over the malleolus and most of the skin over the dorsolateral aspect of the foot as far as the base of the toes will usually be anesthetized and there will be no pain in the injured tissues. If pain or tenderness persists, injection should be repeated at this time. If roentgenograms rule out a fracture or abnormal rotation of the astragalus, an elastic bandage is applied to the ankle, and the patient is instructed to exercise the ankle freely. All nine patients in whom this method was used were treated within 72 hours of injury, and in four this method was successful after rest, elevation, and soaking had been unsuccessful. The only time lost from work was that from the time of injury until the time of injection.

2:861-1000 (June) 1951. **Partial Index**

Recent Experiences in Treatment of War Wounds of Chest. H. A. Blake, S. P. Wise III, V. S. Taylor and others.—p. 861.
Early Management for War Wounds of Genitourinary Organs. B. G. Clarke and W. F. Leadbetter.—p. 871.
Osteochondritis Dissecans of Interphalangeal Joint. A. B. Ramsay and J. W. Batch.—p. 883.
*Asymptomatic Active Pulmonary Tuberculosis, G. A. Cronk, D. Lufkin and T. L. Ryan.—p. 887.
Damage to External Iliac Artery: Report of Case. H. H. Ziperman and V. DeCiutiis.—p. 893.
Dental Disease and Endocrinopathy. H. L. Levin.—p. 899.
Deterioration of Silicate Cements in the Tropics. T. E. Fischer and I. C. Schoonover.—p. 907.
Locally-Fabricated Cervical Collar Used in Treatment of Simple Fractures of Cervical Articular Processes. W. E. Klein and R. H. Bradshaw. —p. 915.
Q Fever. H. H. Waldo.—p. 921.
Primary Pigmentary Degeneration of Retina: Report of Five Cases. N. Yourish.—p. 929.
*Hexamethonium (C6) in Management of Causalgia. J. C. Rose and J. N. Wemple.—p. 937.
Bronchiolitis in Infancy: Clinical Study with Special Emphasis on Cardiac Complications. A. T. Henderson and S. Rosenzweig.—p. 943.
Treatment of Frostbite: Report of Case. J. Fishman.—p. 957.

Asymptomatic Active Pulmonary Tuberculosis.—Of 859 war veteran patients between 17 and 40 with active pulmonary tuberculosis admitted to a sanatorium after routine roentgenographic examination, 429 (50%) were asymptomatic. According to standards of the National Tuberculosis Association, 312 cases (36.3%) were classified quantitatively as minimal, 432 (50.3%) as moderately advanced, and 115 (13.4%) as far-advanced. Of the patients with minimal disease, 188 (60.2%) were asymptomatic, of those with moderately advanced disease, 203 (46.9%) were asymptomatic, and, of those with far-advanced disease, 38 (33%) were asymptomatic. The slow course of tuberculosis, the adaptability of living tissue to the disease, and the tremendous functional reserve of the lung accounts for failure or delay in the development of symptoms from tissue alteration caused by the disease. Because multiple bronchial drainage from all areas of the lungs allows expectoration of the tuberculous exudate, the retention of metabolites of the infection is decreased and systemic reaction to the disease is postponed. Of all the patients in this study 430 had typical symptoms but were unaware of their condition until the routine roentgenograms were made. Public health programs directed to discovery of unrecognized tuberculosis should be continued and expanded. The lay public requires further education in the significance of symptoms.

Hexamethonium (C6) in Causalgia.—Ten men between 18 and 23, with causalgia complicating peripheral nerve injuries, were subjected to a therapeutic trial with hexamethonium (C6), a hexane derivative of polymethylene bistrimethyl ammonium, which preliminary data indicated to be a potent autonomic ganglion blocking agent. The patients were recent casualties from Korea with penetrating wounds of the extremities. An upper extremity was involved in six patients and a lower extremity in four. Causalgia occurred in all cases, the onset varying from almost immediately following injury to four weeks after injury. Eight patients received 50 mg. of the drug both intravenously and intramuscularly, one received the drug only intravenously, and one only intramuscularly. No patient received regularly spaced intravenous injections, but all intramuscular injections were given at six-hour intervals for two to four days. The degree of pain relief varied, some patients having no relief and others having complete freedom of pain, as long as intramuscular injections were given every six hours. Intravenous doses usually gave more relief and for longer periods than intramuscular doses, but the advantages of regularly spaced intramuscular doses outweighed the benefits of the intravenous use of the drug. The favorable response of causalgia to hexamethonium was temporary and palliative, and seven of the patients subsequently required sympathectomies for permanent relief of pain. Further study is necessary before the drug can be fully evaluated in the treatment of causalgia, but there is evidence that it deserves consideration in the management of this syndrome.

Virginia Medical Monthly, Richmond

78:335-392 (July) 1951

Treatment of Fractures by the General Practitioner. O. A. Engh.—p. 337.
Intestinal Obstruction. C. W. Putney.—p. 342.
Treatment of Spontaneous Subarachnoid Hemorrhage. C. E. Troland. —p. 349.
Subphrenic Vagotomy Versus Gastrectomy. J. G. Rennie.—p. 353.
Incidence of Intracranial Neoplasms in Virginia. E. E. Pautler Jr. and F. L. Apperly.—p. 357.
Some Considerations of Physiological Effects of Cortisone and ACTH in Man. J. H. Guss.—p. 359.
Sympatholytic Drugs in Peripheral Vascular Disease. N. Bloom.—p. 364.
Mesenteric Vascular Occlusion with Successful Resection of Small Intestine: Report of Case. J. W. Todd.—p. 366.

Western J. Surg., Obst., & Gynecology, Portland, Ore.

59:317-374 (July) 1951

Plantaris Tenotomy in Claudication and Idiopathic Venous Congestion of Lower Extremities. G. F. Norman and R. T. Betts.—p. 317.
One Hundred and Fourteen Cases of Cornual Resection in Chronic Gonorrheal Salpingitis. N. R. Davidson.—p. 319.
Maternal and Infant Mortality. R. H. Fagan.—p. 324.
Cesarean Sections at Sutter Maternity Hospital—1938 to 1950. H. F. Schluter.—p. 330.
Case for Reevaluation of Indications for Cesarean Section: Based on Analysis of 2,617 Consecutive Cesarean Sections. J. M. Harris, G. Rosenblum, B. L. Ginsburg and others.—p. 337.
Traumatic Arthritis of Pisiform—Triangular Joint: Case Report. E. A. LeCocq.—p. 357.
Uses of Radioactive Gold Colloid in Therapy and Palliation of Neoplastic Disease. W. N. Harsha.—p. 358.
Transarticular Fixation of Fracture-Dislocations of First Metacarpal-Carpal Joint. C. J. Wagner.—p. 362.
Minerals in Etiology and Treatment of Eclamptic Toxemia: Division IV. S. S. Garrett.—p. 366.

West Virginia Medical Journal, Charleston

47:197-242 (July) 1951

The Papanicolaou Smear: Integral Part of Routine Pelvic Examination. W. R. Laird.—p. 197.
Unheralded Hypotension and Coronary Insufficiency Following Use of Veratrum Viride in Treatment of Primary (Essential) Hypertension: Case Report. M. Koenigsberg.—p. 203.
Clinical Use of Levophed, New Vasopressor Substance. W. A. Shafer. —p. 207.
Study of Program of Division of Cancer Control of the State Department of Health. H. C. Huntley.—p. 209.
Medical Education in West Virginia. D. A. MacGregor.—p. 211.

47:243-284 (Aug.) 1951

Prophylaxis of Ewingism. F. J. Holroyd.—p. 243.
Poliomyelitis in West Virginia in 1950. H. C. Huntley.—p. 248.
Arterial Hypertension. I. H. Page.—p. 250.
Thyroiditis: Concepts of Management. A. L. Allen and R. J. Reeves. —p. 258.

FOREIGN

Acta Paediatrica, Stockholm

40:181-258 (May) 1951. **Partial Index**

Experimental Inoculation of Roseola Infantum. B. Hellström and V. Vahlquist.—p. 189.
Experiences Concerning Antituberculous Immunity Produced with Aid of Radio-Active Bacilli. L. Ström and G. Widström.—p. 213.
Meconium Ileus and Hirschsprung's Disease. T. Ehrenpreis.—p. 227.
Wolff-Parkinson-White (W. P. W.) Syndrome in One Year Old Child. M. Lindgren.—p. 233.
Coxsackie Virus Infection: Report of Two Cases. E. A. Dahlström. —p. 235.
*Congenital Hydrocephalus in Newborn Infant—Epidemic Hepatitis in Mother in Second-Third Month of Pregnancy. A. Käss.—p. 239.

Congenital Hydrocephalus in Infant, Epidemic Hepatitis in Mother.—The author reports on a male infant with severe hydrocephalus and microcephalus noted at birth. There was no evidence of syphilis or toxoplasmosis. The infant died when 8 weeks old. Post-mortem revealed an enormous hydrocephalus externus (1,760 cc. of fluid). The shape and size of the cerebellum, pons, and medulla oblongata were normal, whereas the cerebrum was a mass of white brain matter the size of a walnut. It is possible that the hydrocephalus was originally internal, since what was left of the cerebrum was a sac with signs of having been ruptured. The patient's mother had had epidemic hepatitis in the second and third months of pregnancy. The abnormal conditions in the child are taken to be the result of the acute infectious hepatitis in the mother. No similar case seems to have been published.

Arch. Soc. Cirujanos de Chile, Santiago

3:3-128 (March) 1951. **Partial Index**

Critical Analysis of Some Emergency Treatments of Burns and Wounds of Extremities and Face. E. Aldunate Phillips.—p. 3.
*Neurosurgery of Cerebral Tuberculoma. M. C. García-Sancho.—p. 12.
Cystic Disease of Lung. J. Allamand, R. Carrasco and W. Sunkel.—p. 19.
*Report on 102 Cases of Neuralgia of Trigeminus. A. Asenjo and J. Alvarez-Loyo.—p. 40.
Tetanus: I. Clinical Study and Statistics of 141 Cases. L. Casorzo G. and L. Figueroa G.—p. 73.
Id.: II. Treatment. (National Experience). L. Figueroa G. and L. Casorzo G.—p. 84.
Mixed Tumors of the Salivary Glands. E. Petermann F.—p. 100.

Neurosurgery of Cerebral Tuberculoma.—García-Sancho reports 169 cases of tuberculoma of the central nervous system observed among 5,000 patients at the Institute of Neurosurgery of Chile in the course of 10 years. Incidence of tuberculosis is high in Chile. The standard of living of workers is low, and diet is deficient. Morbidity is found in all the social strata, which corroborates the fact that Chile is passing through a stage of active tuberculous infection. There are active lesions in 3.18% of the population of Santiago. The early symptoms of increased intracranial tension caused by tuberculoma are intense headache and nausea. The fundi show curved vessels, sclerosis, or papillary atrophy; visual acuity is decreased. Secondary symptoms are bradycardia, drowsiness, and vertigo. Mantoux reaction, hemogram, and sedimentation rate indicate an active lesion. Roentgenograms of the skull show signs of intracranial hypertension, i. e., prominent grooves of the veins of the diploë, separation of the sutures, and decalcification of sella turcica. Lumbar puncture is advisable when the tuberculoma is not located in the posterior fossa and is not accompanied by severe hypertension. Inoculation of a guinea pig and subsequent culture of the spinal fluid yield Koch bacilli. Pneumoencephalography and arteriography help locate the tumor. Arteriography shows clearly the absence of the vessels due to their displacement at the seat of the tumor. This is important in diagnosis. Roentgen chest examination is indispensable. The surgical treatment consisted of decompression by the Stookey-Scarff or Torkildsen techniques and removal of the granuloma. Prognosis depends on the stage of the pulmonary lesion, the patient's resistance, and the possibility of complete removal of the granuloma. The most frequent complication is dissemination of Koch bacilli, giving rise to post-surgical tuberculous meningitis. This is prevented by streptomycin given in daily doses of 1 gm. four or five days before operation and continued up to total doses of 100 gm. after the operation. Streptomycin therapy is combined with paraaminosalicylic acid in daily doses of from 12 to 20 gm., up to a total of 2 or 3 kg. This combined surgical and medical treatment has greatly improved the prognosis and has lengthened the patients' life in inoperable tumors. Necropsy in 89 cases revealed the presence of tuberculoma in 19 patients without the existence of any other specific lesion.

Trifacial Neuralgia.—In 102 patients, 62 women and 40 men, 136 interventions were performed for neuralgia of the trigeminal nerve. The right branch is involved oftener than the others. There were 71 instances with pain in the right branch, 28 in the left, and three in both. Treatment was by either alcohol injection or avulsion and sectioning of the peripheral branches, or by partial or total sectioning of the sensitive root of the nerve in its intracranial or intraencephalic localization (tractotomy). Alcoholistation was done in 62 patients with neuralgia of one branch of the nerve, of whom 36 had satisfactory results, 18 had transient results, and eight no results. Avulsion and sectioning is indicated especially when alcohol injection has failed and the patient has pain in the first branch of the nerve. Seven avulsions were performed, with good results in six patients and poor results in one. Tractotomy was performed by the Spiller and Frazier technique in 43 patients, of whom 34 had satisfactory results and eight had relapses. One patient died from disease not related to the operation. Frazier's operation was repeated in six of the patients with relapses. Grant's tractotomy was performed in one patient and alcohol injection in the remaining. There were no relapses. The authors consider Frazier's operation as a definitive treatment, easy to perform, and without risk if correct technique is followed. It was performed successfully in patients 86 years old. It is indicated in neuralgia of the trigemenus involving the two lower branches and in older persons. Twenty-four tractotomies were performed by Sjöqvist's technique (section of the tractus spinalis trigemini lateral to the bulb), in 16 of which results were satisfactory and in three transient. One patient died. Sjöqvist's operation with either Grant or Olivecrona modification is indicated in young patients suffering from neuralgia of the three branches of the trigeminus and in cancer in areas supplied by this nerve. The authors conclude that essential trifacial neuralgia not improved by medical therapy and in which asymptomatic cause has been eliminated should be treated surgically. Dental origin of the trifacial pain is infrequent.

British Journal of Ophthalmology, London

35:381-444 (July) 1951. **Partial Index**

Accommodation Reflex and Its Stimulus. E. F. Fincham.—p. 381.
Binocular Vision in Light Adaptation and Dark Adaptation in Normal Subjects and Coal-Miners. D. A. Campbell, R. Harrison and J. Vertigen.—p. 394.
Keratome and Scissors. A. H. Osmond.—p. 406.
B. C. G. Vaccine and Phlyctenular Kerato-Conjunctivitis. F. J. Damato. —p. 416.

British Journal of Social Medicine, London

5:73-144 (April) 1951. **Partial Index**

Pulmonary Tuberculosis Mortality in Printing and Shoemaking Trades: Historical Survey, 1881-1931. M. Cairns and A. Stewart.—p. 73.
*Incidence of Mongolism and Its Diagnosis in the Newborn. C. Carter and D. MacCarthy.—p. 83.
Note on Secular Changes in Human Sex Ratio at Birth. C. R. Lowe and T. McKeown.—p. 91.

Incidence of Mongolism.—The total number of mongols born over the past few years in 12 maternity hospitals was 107 in 71,521 births, that is, 1.5 per 1,000 or 1 in every 666 live births or stillbirths. Since the condition is oftener missed than wrongly diagnosed the true incidence in hospital births is probably higher than this. The age distribution of half the mothers and also that of all the mothers of mongols in 10 of these hospitals was ascertained; from this the incidence of mongolism to mothers in five-year age groups was calculated. The incidence in mothers under 25 is very low, but in mothers over 40 it is more than 1%. To arrive at an estimate of the incidence of mongolism in the general population, these age-specific incidences were then applied to the registrar-general's figures for all maternities, classified by age, in Greater London and in England and Wales for

1947. Both for Greater London and for England and Wales mothers having children in 1947 were rather older than the hospital population as a whole, so that the estimated incidence of mongolism is higher. For Greater London it was 1.63 in 1,000 and for England and Wales 1.6 in 1,000 maternities. Here again the true incidence will be higher still in so far as mongols are not always recognized in infancy. The features of mongolism in the newborn are described, and the bases for the diagnosis of mongolism are discussed.

British Medical Journal, London

2:1-66 (July 7) 1951

Medicine, Yesterday and To-Morrow. H. Dale.—p. 1.
*Homologous Serum Hepatitis and Measles Prophylaxis: Report to the Medical Research Council. W. C. Cockburn, J. A. Harrington, R. A. Zeitlin and others.—p. 6.
Poisoning by Dinitro-Ortho-Cresol: Some Observations on Effects of Dinitro-Ortho-Cresol Administered by Mouth to Human Volunteers. D. G. Harvey, P. L. Bidstrup and J. A. L. Bonnell.—p. 13.
Poisoning by Dinitro-Ortho-Cresol: Report of Eight Fatal Cases Occurring in Great Britain. P. L. Bidstrup and D. J. H. Payne.—p. 16.
Medical Indications for Surgical Treatment of Acutely Bleeding Peptic Ulcer. H. Begtrup.—p. 20.
Syndrome of Suprarenal Haemorrhage in the Adult with Report on Four Cases in Association with Pregnancy. C. J. Dewhurst.—p. 22.
Combined Reductions of Lower Jaw and Nose. P. Clarkson, W. Grossman and F. A. Walker.—p. 26.

Homologous Serum Hepatitis and Measles Prophylaxis.—Of six boys and four girls between 18 and 49 months old, who were recipients of the same batch of plasma for measles prophylaxis, hepatitis developed in seven, and three of the seven died. Six of the seven children had a severe form of jaundice, and one had symptoms of encephalitis without apparent jaundice, but necropsy revealed slight icteric tinge of conjunctivae. Part of the same batch of plasma was fractionated, and gamma globulin was prepared from it. In the follow-up of 56 out of the 58 recipients of this batch of gamma globulin, there was one mild case of jaundice, in a boy aged 12 who had received 8 ml. In the absence of evidence to the contrary, this case must be considered to be one of homologous serum hepatitis resulting from the administration of gamma globulin prepared from a batch of plasma subsequently shown to be icterogenic. Of the 60 donors who gave blood to the icterogenic pool of plasma, six who had a previous history of jaundice were investigated in detail. No evidence that they were the source of the infection was obtained. Care in recording the batch numbers of human blood and its products materially assisted in investigating the origin of the contaminated batch. The risk of homologous serum hepatitis following parenteral inoculation of gamma globulin prepared from an icterogenic pool of plasma appears to be much less than that following the use of unfractionated plasma, but it cannot be ignored. The authors' report shows that in children aged less than 5 years, who have been held to be relatively insusceptible to homologous serum hepatitis, the disease may develop and prove fatal. Owing to the long incubation period, cases of homologous serum hepatitis may readily be missed, and in all cases of jaundice a history of previous injections should be sought. In some cases of rapid liver damage the patients may show predominantly neurological symptoms with no apparent jaundice during life.

Clinical Science, London

10:161-266 (May) 1951. **Partial Index**

Urinary Reducing Steroids and Adrenal. C. L. Cope and M. Bain.—p. 161.
Renal Haemodynamics in Vaso-Vagal Fainting Due to Haemorrhage. H. E. de Wardener and R. R. McSwiney.—p. 209.
Oxygen Consumption and Anaesthesia. R. Shackman, G. I. Graber and C. Redwood.—p. 219.
Fibrinolysis and Eosinophil Count. S. C. Truelove.—p. 229.
*Effect of Magnesium on Cardiac Arrhythmias Caused by Digitalis. P. Szekely and N. A. Wynne.—p. 241.
Twenty-Four Hour Gastric Analysis in Patients with Histamine Achlorhydria. G. Watkinson and A. H. James.—p. 255.

Magnesium and Digitalis Arrhythmias.—Although the abnormal cardiac rhythms that occur in patients receiving digitalis may be due to the disease process, digitalis is the precipitating factor in many patients. Arrhythmias caused by digitalis are of two types; the first is characterized by disturbances of the conducting mechanism and the second by increased irritability of the heart muscle. This report is concerned with 11 patients of the latter group. Bidirectional ventricular tachycardia occurred in two patients, and in a third there was a sudden transition from bigeminal rhythm to unidirectional ventricular tachycardia. In five patients extrasystolic bigeminy developed, in one, trigeminy, and in two, auriculoventricular dissociation with a ventricular rate exceeding that of the auricles. From 15 to 20 cc. of a 20% solution of magnesium sulfate was administered intravenously. Magnesium was found to be effective in abolishing extrasystolic bigeminy and in interrupting ventricular tachycardia precipitated by digitalis. The depressant action of magnesium on conduction and irritability of the heart muscle was confirmed in experiments in cats. These clinical observations demonstrate that serious cardiac arrhythmias may occassionally complicate digitalis treatment. As a rule, partial or complete heart block is the result of excessive doses of digitalis, whereas multifocal extrasystoles or ventricular tachycardia, indicating increased myocardial irritability, may occasionally appear after comparatively small doses. The appearance of ventricular tachycardia may be the first and only manifestation of digitalis poisoning. The state of the heart muscle is of importance, and toxic rhythms precipitated by small doses of digitalis usually occur in the presence of advanced myocardial disease.

Deutsche medizinische Wochenschrift, Stuttgart

76:821-852 (June 22) 1951. **Partial Index**

*Clinical Observations and Investigations on Role of Estrogens in Breast Cancer. R. Bauer.—p. 821.
Clinical Experimental Studies on Pathogenesis of Genuine Nephrosis. F. Linneweh and M. Maneke.—p. 823.
Pneumothorax Exudate with Consideration of Cytodiagnosis. J. Wolf and R. Winkhaus.—p. 826.
Hypoglycemic Headache. F. Brauch.—p. 828.
The Problem of Rheumatism. M. G. Good.—p. 830.

Estrogens and Cancer of Breast.—In women with cancer of the breast the life expectancy is less in those who are premenopausal than in those who are postmenopausal. In those with cancer of the Steinthal 2 classification the percentage of five year survival is 44.7% for those under 45 and 68.4% for those over that age. There is also a higher incidence of recurrence, metastases, and involvement of the other breast in the younger than in the older group. Bauer corroborated the observation made by Heiberg and Olch that the onset of the menopause is generally later in those in whom cancer of the breast develops. In the cases investigated by Bauer the upward shift in age was more than two years. Pulvermacher observed that 45% of women with cancer of the breast were still menstruating regularly at the age of 51. Some authors believe that the changes taking place in the hormonal equilibrium at the time of the menopause play a part in the pathogenesis of breast cancer and that castration is dangerous. However, curves plotted to indicate the ages at the onset of breast cancer and of the menopause do not even closely coincide. Reports on the efficacy of estrogenic substances in mammary cancer may appear to contradict these observations, but such is not the case if it is considered that estrogens had favorable effects on mammary carcinoma only in women in the higher age groups (over 60 years) and with large doses, which are much above physiological levels. Further supporting evidence of the unfavorable effect of extrogens on breast cancer is that a high percentage of women with breast cancer give a history of premenstrual breast symptoms, such as a sensation of tension, heat, or even pain, long before the onset of cancer. Investigating the incidence of such premenstrual breast symptoms, the author found that in 500 women without mammary cancer, it was 20.6%, whereas in 300 women with cancer it was 43.3%. When these 300 women were divided according to premenopausal or postmenopausal onset of breast cancer, it was found that the higher incidence was accounted for entirely by the first group, in whom the incidence was 70%. The author suggests that radical mastectomy for advanced cancer in premenopausal women be followed by administration of testosterone in combination with roentgen irradiation.

Journal of Bone and Joint Surgery, London

33B:147-298 (May) 1951. Partial Index

*Prognosis in Tuberculosis of Hip: Analysis of Results of Treatment and of Factors Which Influence the End-Result. J. Dobson.—p. 149.
Fractures of Upper End of Tibia. I. Palmer.—p. 160.
*Cancer as Sequel to War Wounds. L. Gillis and S. Lee.—p. 167.
Compression Arthrodesis of Ankle and Shoulder. J. Charnley.—p. 180.
Trochanteric Fractures: Review of 110 Cases Treated by Nail-Plate Fixation. E. M. Evans.—p. 192.
Actinomycosis of Bone with Special Reference to Infection of Vertebral Column. V. Z. Cope.—p. 205.
Advanced Actinomycosis of Spine Treated with Penicillin and Streptomycin: Report of Case. M. S. Brett.—p. 215.
Infection of Wounds with Actinomyces. C. H. Cullen and M. E. Sharp.—p. 221.
Pectoralis Minor Transplant for Paralysis of Serratus Anterior. J. P. Chaves.—p. 228.
Case of Renal Rickets Simulating "Metaphysial Dysostosis." G. M. Müller and H. A. Sissons.—p. 231.
Tenodesis of Subclavius in Treatment of Recurrent Dislocation of Sterno-Clavicular Joint. H. J. Burrows.—p. 240.
Fractures of Radial Head with Distal Radio-Ulnar Dislocation: Report of Two Cases. P. Essex-Lopresti.—p. 244.
Atypical Case of Infantile Cortical Hyperostoses. I. D. Kitchin.—p. 248.

Prognosis in Tuberculosis of the Hip.—Of 320 patients with tuberculosis of the hip joint, 171 had the lesion in the right hip, 145 in the left hip, and four had bilateral involvement. The primary bone focus involved the acetabulum alone in 86 patients (39.3%), the acetabulum and femoral head in 76 (34.1%), the head of femur alone in 42 (19.2%), and the femoral neck alone in 15 (7.4%). In 101 patients widespread destruction of the joint had taken place by the time the patient first came under observation. Immobilization was the only treatment given 221 patients, the average length of treatment being 30 months. In 99 patients, immobilization was followed by some form of surgical intervention. Extra-articular iliofemoral arthrodesis was performed in 67, displacement osteotomy in 31, and disarticulation through the hip in one. Of 187 patients observed for more than three years after discharge from the hospital, 147 (93%) returned to full activity, seven (3.7%) were partly incapacitated, and six (3.3%) were totally incapacitated. Premature epiphysial fusion round the knee joint of the affected side occurred in 23% of all the patients aged less than 15 years. When hip disease was complicated by multiple foci of active tuberculosis or by secondarily infected abscesses and sinuses, the prognosis was seriously worsened. Significant late deformity occurred in 38.3% of patients discharged with "sound" fibrous ankylosis and in 60.5% of those with unstable fibrous anklyosis. Analysis of the late results suggests that the prognosis is best when an adequate period of conservative treatment is followed by some form of arthrodesis operation.

Cancer as a Sequel to War Wounds.—The occurrence of a squamous cell carcinoma arising at the site of a wound received during World War I is reported in 24 men. Thirteen of the 24 patients died of cancer. The term sinus cancer was chosen to designate 16 of the 24 cases with a history of an osteomyelitic sinus discharging for long periods, often throughout the latent interval. The tumors occurred almost always in the lower limb, buttocks, or sacral area. It is in the lower limb that massive wounds with severe bone damage are treated conservatively and give rise to the persistent sinuses liable to undergo malignant change. Scar cancer occurred in the remaining cases. In this group, the growth started in an area of thin, poorly nourished and brittle epithelium based on more or less extensive fibrous tissue and often firmly adhered to bone. The lower limb was not predominantly affected; in three cases the lesion was in the mouth, twice clearly in relation to skin inlays. Even in this group, with little or no ulceration during the latent period, long-continued carcinogenic influences were at work. The dangerous scar is one in which cell division has been continuously stimulated for years under worsening conditions of deficient circulation and mechanical restriction, leading to accumulation of metabolites or to local deficiencies, eventually resulting in abnormal mitosis. In the series reported on, carcinoma did not develop sooner than 18 years after the injury, and cases are still occurring more than 30 years after the end of World War I. A patient with a chronic discharging sinus or an extensive adherent scar is never safe from the risk of malignant change. The possibility should be kept in mind by those concerned with the long-term treatment of wounds of this kind. Reasonable prophylactic measures would be excision of adherent or unstable scars with, if necessary, their replacement by suitable pedicle flaps, and earlier amputation if an osteomyelitic sinus persists for several years and does not yield to treatment. Supervision of doubtful cases should be frequent and should not be relaxed with the passage of years. Warty changes or indolent ulceration of scars should be regarded with suspicion and investigated by biopsy. Any increase in pain or discharge in association with a sinus should receive prompt attention. If malignant change occurs, treatment should be as speedy and as radical as with any other cancer.

Journal Neurol., Neurosurg. & Psychiatry, London

14:59-152 (May) 1951

*Subacute Cortical Cerebellar Degeneration and Its Relation to Carcinoma. W. R. Brain, P. M. Daniel and J. G. Greenfield.—p. 59.
Ischaemic Lesions of Peripheral Nerves: Review. R. L. Richards.—p. 76.
Repetitive Discharges in Human Motor Nerve Fibres During Post-Ischaemic State. E. Kugelberg and W. Cobb.—p. 88.
*Neuromuscular Disorders Amenable to Wheat Germ Oil Therapy. R. Rabinovitch, W. C. Gibson and D. McEachern.—p. 95.
Clinical Features and Response to Cortisone of Menopausal Muscular Dystrophy. G. M. Shy and D. McEachern.—p. 101.
Surgical Treatment of Extrapyramidal Diseases. P. C. Bucy.—p. 108.
Disabilities and Progress in Dysphasic University Student. M. B. Elvin and R. C. Oldfield.—p. 118.
Case of Gustatory Sweating. H. I. Tankel.—p. 129.
Spinal Meningitis Due to Actinomyces Bovis Treated with Penicillin and Streptomycin. C. Edwards, W. A. Elliott and K. J. Randall.—p. 134.
Electrical Activity of Human Brain During Artificial Sleep: II. Regional Differentiation of Response to Barbiturate Sedation. B. D. Wyke.—p. 137.

Cerebellar Degeneration and Carcinoma.—A number of cases have been reported in which subacute cortical cerebellar degeneration was associated with carcinoma. Brain and collaborators attempted to obtain data on the incidence of this association and on the role of carcinoma in causing or hastening the cortical cerebellar degeneration. In the four cases they describe, symptoms of cerebellar disease developed fairly rapidly in subjects past middle age and contributed to their death at intervals of three and a half to seven months from the onset of the disease. Post-mortem showed diffuse degeneration of the cerebellar cortex in one, and in three there was also degeneration of one or more of the long tracts of the spinal cord. In these three cases there was also a carcinoma of the lung in two and of the ovary in one. In two of the three cases carcinoma was unsuspected during life. Progressive dementia appeared soon after the onset of cerebellar symptoms in three cases. Diplopia of the cerebellar type was present in all and was an early symptom in three. Cramplike pains in the legs preceded cerebellar symptoms in two cases. A review of the literature shows a high correlation of carcinoma with subacute cortical cerebellar degeneration. In cases that have run their course in two years, more than two-thirds of the patients have had carcinoma, although this has not always been clinically evident. The more chronic forms of cerebellar degeneration show no such correlation.

Wheat Germ Oil in Neuromuscular Disorders.—A total of 151 patients with neuromuscular disorders were investigated and followed for up to 12 years. Of these patients, 107 were treated with either wheat germ oil or wheat germ oil concentrate, sometimes with the addition of tocopherols. Thirteen showed definite improvement. These include two cases of atypical muscular atrophy. In five (three children and two adults) out of 25 patients with progressive muscular dystrophy, symptoms were arrested, and moderate to marked improvement occurred. Three out of five patients with menopausal muscular dystrophy showed remarkable improvement. All three cases of dermatomyositis responded favorably to wheat germ oil therapy. The authors conclude that certain neuromuscular disorders respond to wheat germ oil therapy and that these conditions are the ones that are also apt to be improved by adrenal corticoids.

Lancet, London

2:1-44 (July 7) 1951

Fatigue in Aircrew: Observations in the Berlin Airlift. R. H. Stanbridge. —p. 1.
Congenital Hypertrophic Pyloric Stenosis: Review of 320 Cases. E. C. Wood.—p. 3.
Deep Venous Valves in Aetiology of Varicose Veins. H. D. Moore. —p. 7.
Paratyphoid-B Vi-Phage Typing. A. Felix and B. R. Callow.—p. 10.
Detection of Q-Fever Antibodies by Anti-Globulin Sensitisation Test. R. R. A. Coombs and M. G. P. Stoker.—p. 15.
Potassium-Replacement Solutions. H. G. Davidsen and K. Kjerulf-Jensen. —p. 17.
Pyloric Obstruction Caused by Marginal Pyloric Erosions. V. J. Kinsella —p. 18.
Scalp-Vein Transfusion in Infants. M. L. Black, I. J. Carré and O. H. Wolff.—p. 19.
*Reduction in Thrombophlebitis by Limiting Duration of Intravenous Infusions. J. F. B. Carter.—p. 20.

Reduction of Thrombophlebitis by Limiting Duration of Infusions.—In a study of thrombophlebitis following intravenous infusion, the type of infusion set used, the limb chosen for infusion, the nature and quantity of fluid infused, and the duration of infusion were recorded. In more than half the 62 patients in the first series thrombophlebitis developed, and one-fourth had severe reactions. Since time seemed to be the most important factor, the duration of infusion was controlled before any further attempt was made to assess the thrombosing effects of the various fluids, and infusions were stopped as soon as possible, always within eight hours. When this was done, the incidence of thrombophlebitis was reduced from 52 to 4.5%.

Medical Journal of Australia, Sydney

1:709-744 (May 19) 1951

Surgical Pathology of Non-Specific Infections of Nose and Accessory Nasal Sinuses. G. Swinburne.—p. 711.
Cause of Hypokalaemia (Hypopotassaemia) Following Para-Aminosalicylate Therapy. A. H. Campbell and O. E. Neufeld.—p. 725.
Determination of Impurities in Commercial Para-Aminosalicylic Acid. O. E. Neufeld.—p. 727.

Münchener medizinische Wochenschrift, Munich

93:1341-1387 (July 6) 1951. **Partial Index**

*Rice Diet in Hepatitis, Gastritis and Ulcer. D. Jahn.—p. 1341.
Clinical Significance of Chest Leads in Comparison with Leads from the Extremities in Electrocardiography. P. Laurentius and H. Thiesen. —p. 1349.
Treatment of Parkinsonism and Its Relation to Brain Pathology. G. Heilig.—p. 1355.
Prophylaxis of Embolism by Circulatory Remedies. P. W. Springorum. —p. 1367.

Rice Diet in Hepatitis, Gastritis, and Ulcer.—The prevalence of infectious hepatitis in Germany since 1941 revealed that the hepatic disorder is frequently followed by gastritis, which in turn may be followed by gastric and duodenal ulcers. The dietetic treatment of these disorders must therefore take account chiefly of the condition of the liver. Hepatitis begins with a disturbance in the protein metabolism, which has been ascertained by studies on the nitrogen balance and by changes in the ratio of the blood proteins. Later, disturbances in the carbohydrate metabolism become manifest in the tendency to hypoglycemia. Fatty degeneration is less frequent, occurring only if the disease is particularly severe or prolonged. Since these disturbances are caused by changes in the actions of the ferments rather than by a deficiency, it appears that the foods given during this state of impaired hepatic function should be such that the liver is protected against exertion. The suggestion of a high protein diet has pushed this concept of protecting the liver into the background. However, since methionine and a high protein diet were not successful in the experience of the author, he has returned to the older method of protecting the liver during the time when the fermentative functions involved in the protein metabolism are impaired. By providing a diet low in proteins and rich in carbohydrates he gives nourishment to the other organs but does not put a burden on the impaired liver. An improvement in the metabolic processes of the liver can be recognized in the change from the oliguric to the polyuric phase. At this time, milk proteins, which are easily digested, can be added to the diet and the sodium chloride restriction can also be somewhat relaxed. It should be remembered that because of the impairment in the protein metabolism, substances likely to act as allergens (H-substances) develop and that hepatic disease favors the development of food allergies. The author feels that this will lead to gastritis and possibly to peptic ulcer. For this reason, hepatitis, gastritis, and peptic ulcer should require similar dietetic treatment. A rice diet, an adaptation of that recommended by Kempner for hypertension and renal disease, is suitable for patients with these disorders.

Nordisk Medicin, Stockholm

45:911-950 (June 13) 1951. **Partial Index**

Carbon Dioxide Accumulation During Anesthesia. H. C. Engell.—p. 911.
*Anorexia Nervosa. L. Eitinger.—p. 915.
*Peragit (Artane) in Treatment of Parkinsonism and Other Diseases. K. Steincke.—p. 919.
Arthritis Mutilans (Opera-Glass Hand). S. Rosendahl-Jensen.—p. 923.

Anorexia Nervosa.—Eitinger considers it reasonable to assume that the somatic syndrome of anorexia nervosa is a direct result of undernourishment and discusses the likelihood that the psychogenic factors that give rise to the anorexia may cause a depression of the pituitary function. A psychosomatic vicious circle is probable. Reduced pituitary hormone production and the resulting somatic symptoms are common to all conditions where limited food consumption depresses the life processes of the organism. The resemblance between cachexia due to starvation, as seen in concentration camp victims, for example, and the cachexia of anorexia nervosa is stressed. The author concludes that anorexia nervosa is not a disease *sui generis* but a hysteriform neurosis in which anorexia is the main symptom. This leads secondarily to lowered metabolism and cachexia and consequent somatic symptoms.

Artane® in Parkinsonism and Other Diseases.—Artane® (3-[1-piperidyl]-1-phenyl-1-cyclohexyl-1-propanol hydrochloride) was administered to 44 patients with various disorders of the central nervous system, but good results were obtained only in the cases ascribed to pathological changes in the extrapyramidal motor system. Artane® is of value primarily in relaxing rigidity. In some cases, tremor, oculogyric crises, and lethargy were favorably influenced. The manner of action is not known; the central effect in small doses is inhibitory, in large doses, exciting. The agent does not affect circulation, the formed components of the blood, respiration, liver, kidneys, sugar metabolism, or appetite. The side reactions are few and seldom distressing. Intoxication, in the form of hallucination or confusion, is as a rule seen only after protracted treatment with unnecessarily large doses. Treatment should be started and stopped gradually. The optimal dose was 10-20 mg. daily, varying individually. Combined treatment with one or more of the preparations of the atropine group may be advantageous, but no fixed plan of treatment can be given. Apparently, patients with postencephalitic Parkinsonism tolerate and require larger doses than do those with other types of Parkinsonism. Laboratory control seems to be unnecessary. Special care must be exercised with regard to patients who have had or have been observed for mental disorders.

Rivista Critica di Clinica Medica, Florence

51:1-250 (Jan.-March) 1951. **Partial Index**

Contribution to Knowledge of Collagen Diseases. C. Malaguzzi-Valeri and L. Perosa.—p. 1.
Possibility of Adaptation of Pulmonary Circulation of One Section of Lung to Ventilation of Same Section. C. P. Curti and M. Bracco. —p. 53.
*Study on Metabolic Correlations Between Liver and Hormones: Incidence of Clinical and Functional Hepatic Disturbances in Women with Menstrual Irregularities. M. Matteini and B. Marabini.—p. 74.

Hepatic Disturbances in Women with Menstrual Irregularities.—Clinical and functional changes of the liver were studied in 26 women, between the ages of 18 and 43, with menstrual irregularities of presumably ovarian origin. The reaction to the thymol turbidity test was positive in 17 patients (72%). It was more pronounced in women whose menstrual irregularity dated back to the time of the first menstruation. Reaction to the Takata-Ara test was positive in only two patients (8%). Total protein de-

terminations were low in four patients (16%), while albumin-globulin ratio determinations were above normal in nine patients (33%), the increase being more pronounced in those who had had irregular menstruation from the time of menarche. Enlargement of the liver was observed in 24 patients (96%), cholecystitis in 12 (46%), and disturbances of the digestive system attributable to hepatobiliary lesions in 15 (57%). Thus, in the 26 women irregular menstruation was almost always associated with clinical and functional changes in the liver, and these were always more pronounced in patients who had had irregular menstruation from the time of menarche. The fact that other workers also have reported a higher incidence of hepatic lesions in women with menstrual irregularity than in those without menstrual irregularity supports the authors' concept that the hepatic lesions are secondary to the ovarian dysfunction. The occurrence of hepatic lesions in women whose ovaries had been removed when they were adolescent and also in a few others with primary amenorrhea seems also to favor this concept. With regard to treatment one must consider that ovarian dysfunction may cause hepatic disturbances and that the ovarian disturbances may be due to changes in the liver. Estrogen therapy, therefore, is contraindicated in cases of ovarian dysfunction associated with severe lesions of the liver and in cases of primary ovarian dysfunction with hypersecretion of estrogen and with hyposecretion of progesterone. However, in cases in which a primary estrogen deficiency is suspected in the presence of moderate hepatic disturbances, the administration of estrogenic compounds is indicated within certain limits to break the pathogenic chain between the ovary and the liver.

Schweizerische medizinische Wochenschrift, Basel

81:609-632 (June 30) 1951. Partial Index

*Postpartum Myxedema and Simmonds' Disease. A. Schüpbach.—p. 610.
Female and Corticoadrenal Pseudohermaphrodism. M. Jaccottet —p. 613.
*Involvement of Bone Marrow in Chronic Rheumatic Polyarthritis and Its Treatment with Cortisone. B. Jasiński and A. Staehelin.—p. 619.
*Hypersensitivity to Acetylsalicylic Acid in Bronchial Asthma. A. Kind. —p. 623.

Postpartum Myxedema and Simmonds' Disease.—Emaciation and cachexia should no longer be considered as symptoms of severe deficiency of the anterior pituitary. Secondary factors are responsible for the occurrence of these symptoms in the small number of cases of Simmonds' disease in which they may be present. Postpartum hypophysiogenic myxedema associated with atrophy of the gonads and frequently with unconspicuous signs of hypofunction of the adrenal cortex, such as asthenia, androgen deficiency, and tendency to hypoglycemia, form the classic type of Simmonds' disease. Sheehan first called attention to the postpartum necrosis of the anterior pituitary. Because of the generally abundant reserve of the endocrine glands, the clinical signs of Simmonds' disease may become manifest only in the presence of pronounced deficiency of the anterior pituitary, and postpartum necrosis of this gland is the most frequent etiological factor. Two such cases are reported. One is that of a woman who had permanent amenorrhea after a delivery complicated by severe hemorrhage at the age of 34. Fourteen years later the diagnosis of postpartum deficiency of the anterior pituitary of myxedematous type was made. Coma and death resulted from minor surgical intervention 19 years after the severe hemorrhage that occurred during delivery. The patient had not lost much weight at the time of death. Necropsy revealed atrophy of the anterior pituitary, the thyroid, adrenal cortex, and the gonads. The second case is that of a woman who had amenorrhea for nine months after the delivery of her fifth child, which was associated with severe hemorrhage and collapse. Four years later she again became pregnant and delivery was normal, but at the age of 36 amenorrhea became permanent. Treatment of anterior pituitary deficiency should consist of administration of an effective thyroid preparation combined with desoxycorticosterone and with testosterone, because of the latter's stimulating effect on tissue formation. The use of thyroid extract to correct the myxedema in these patients involves considerable risk of acute adrenal deficiency, because of the increased excretion of water and sodium chloride and the increased metabolism in anterior pituitary deficiency, so that in Simmonds' disease thyroid preparations must be combined with adrenal cortex preparations.

Impairment of Bone Marrow in Chronic Rheumatic Polyarthritis.—In 16 of 80 patients with chronic rheumatic polyarthritis, impairment of bone marrow was suggested by the peripheral blood picture. Five patients had chronic granulocytopenia, five with chronic leucopenia were so-called transition cases, five had anemia, and one had thrombopenia. Differential counts of the cells observed in stained preparations made from the bone marrow of the patients with granulocytopenia showed an increased number of plasma cells and of eosinophil cells in only one patient. Marrow poor in cells or hypoplastic marrow was observed in only three patients. Single mast cells were observed in four patients. The presence of the latter cells suggested inflammatory changes of the bone marrow, but on the whole the morphological picture did not suggest functional changes in the bone marrow. However, function tests of the bone marrow by means of leucocyte curves following the intravenous administration of "pyrifer" (a mixture of nonpathogenic fever-producing bacteria in isotonic sodium chloride solution) revealed definitely diminished function of the bone marrow in the five patients with severe chronic granulocytopenia. A less pronounced disturbance of bone marrow function was demonstrated in one of the so-called transition cases, and in three control cases with chronic polyarthritis and normal leucocyte count in the blood. Infectious-toxic impairment of the bone marrow of varying intensity is to be considered in all these cases. Six patients, three with chronic granulocytopenia, one patient with chronic leucopenia and two patients with chronic rheumatic polyarthritis and a normal number of leucocytes in the blood were treated with cortisone. After an initial dose of 100 to 200 mg., doses of 100 mg. were administered daily for seven to nine days, followed by the administration of 50 mg. daily for a few more days. The total dose varied from 700 to 1,300 mg. Bone marrow function was slightly improved in only one of the two patients with chronic rheumatic polyarthritis and a normal number of leucocytes in the blood. Bone marrow function of the five other patients, particularly of the patients with granulocytopenia, did not respond to cortisone.

Hypersensitivity to Acetylsalicylic Acid in Bronchial Asthma.—A woman, 50, with bronchial asthma had an operation for the removal of a large nasal polyp. A tablet of acetophenetidin combined with acetylsalicylic acid was administered before the operation, which was uneventful. One hour later a severe state of asthma developed and hospitalization was necessary. In the course of a sensitivity test with orally administered acetylsalicylic acid, 0.25 gm., a severe attack of asthma occurred, with nearly fatal collapse. The attack lasted 45 minutes, and dyspnea continued for two more hours. Hypersensitivity to acetylsalicylic acid occurs frequently in patients with bronchial asthma and may produce severe undesirable effects, which occasionally may be fatal. Acetylsalicylic acid, therefore, should never be given to patients with asthma, without questioning them about tolerance or without a sensitivity test. Simultaneous sensitization to other antipyretics is not rare. No explanation has been found for this peculiar allergy. It develops particularly in asthmatic patients of middle and advanced age. An infectious component may be suggested by the increased incidence of hypersensitivity to acetylsalicylic acid in cases of "infectious" asthma. Surgical treatment combined with massive antibiotic therapy is indicated in cases in which an infectious focus has been found. Neither the author's personal observations nor those listed in the literature would indicate that such patients are uniform with respect to symptoms and to prognosis.

Tubercle, London

32:119-140 (June) 1951

Early Changes of Pulmonary Tuberculosis in Lobectomy Specimens. E. Nassau and W. Pagel.—p. 120.
Preliminary Investigation Into Use of BCG in Kenya. W. S. Haynes and H. Stott.—p. 127.

32:141-162 (July) 1951

Thoracoplasty and Cavitation of Apical Segment of Lower Lobe. H. J. Beard.—p. 142.
Tuberculin Sensitivity in Children Suffering from Pulmonary Tuberculosis. S. Gazybowski.—p. 145.
Extrapleural Plombage with Alkathene. C. Xalabarder.—p. 152.

V 147
1951

BOOK REVIEWS

A History of Neurological Surgery. Edited by A. Earl Walker, M.D., Professor of Neurological Surgery, Johns Hopkins University, Baltimore. Contributors: William J. Atkinson, and others. Editorial Committee: Robert E. Green, Herbert C. Johnson, and W. Eugene Stern. Cloth. $12. Pp. 583, with 152 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

If one accepts the definition of history as a relation of incidents or a written narrative constituting a continuous methodical record in order of time, this collection of essays, written by young men in training to become neurosurgeons, may be regarded as a history of neurological surgery. On the other hand, if one holds with Emerson that "there is properly no history, only biography," then it would appear that these young men, no matter how earnest and studious, could not be qualified to write a history of the development of this productive specialty of surgery. The personalities, the motivations, and the jealousies that influenced the refinements in technique; the discovery of new diagnostic methods; the older procedures that continue to have their indications, contrary to disparaging remarks concerning them and those who proposed them—all of these should be a part of the history of neurosurgery. However, only the older neurosurgeons could write a history in that sense.

Anyone who has assisted at an operation for cutting the sensory root of the fifth cranial nerve for the relief of trigeminal neuralgia with the patient lying down can appreciate the contribution that Adson made to the surgery of that disease and the refinements he brought to the surgical procedure. Adson's contribution was more than that of a differential section of the sensory root. The proposal by Dandy of sectioning the sensory root by a suboccipital operation, because a loss of sensation did not follow and yet pain was relieved, contradicted all known physiological laws, and one might suspect that he was motivated by some other factor. Certainly, other neurosurgeons did not find the high percentage of pathological lesions he described at the point of entrance of the root into the brain stem. The story of the development of neurosurgery at the Mayo Clinic by a young man trained in general surgery, who was given that responsibility by Dr. William Mayo on the death of Beckman, cannot be gleaned from published articles, but it is a fascinating and adventurous tale which carries a moral for aspiring neurosurgeons. Many other instances of a similar nature could be cited.

Only young men have the energy necessary to compile a bibliography of 2,371 references. However, in at least one instance, the reference given is not to the complete and critical paper on the subject by that particular author; one wonders, therefore, whether even the bibliography is one chosen with judgment. As seminar exercises to stimulate the interest of young men in the literature of neurosurgery, this collection of library efforts is adequate, but it falls short of a critical and factual history of the development of neurosurgery during the years when it received its greatest impetus in the United States.

Ugo Benzi: Medieval Philosopher and Physician, 1376-1439. By Dean Putnam Lockwood. Cloth. $8. Pp. 441. University of Chicago Press, 5750 Ellis Ave., Chicago 37, 1951.

This study is an extremely valuable contribution to the history of medieval medicine in Europe. Ugo Benzi, called by his contemporaries "prince of philosophers and physicians," according to Prof. Lockwood was not preeminent in these two fields of intellectual activity. Indeed, the author does not think he was even a philosopher, and, as for being a physician, although he taught medical theory and practiced the art of healing, most of his theories and therapeutic measures would be scorned by the modern physician.

Hugo's name in the history of medicine does not stand out like that of his predecessors, Bernard of Gordon, Gilbertus Anglicus, and John of Gaddesden, or of his immediate successors, Nicolaus Leonicenus and Thomas Linacre. Ugo Benzi was an example of a successful and prominent physician of his time, who taught in several leading universities and treated as patients some of the great of his period but who himself left no permanent impress on medicine. Following the tradition of the age that a physician should be learned in other things than medicine, his first works were an "Introduction to Logic" and a "Commentary on Aristotle." These works enjoyed a certain success and were followed by his five "Commentaries" on medical theory, his "Questiones," and then his work on practical medicine, especially his "Consilia" and "Treatises."

As Prof. Lockwood points out, the medieval scholars were more impressed by subtle argument than by new discoveries. His "Consilia," on which his reputation in later centuries rested, are not strictly speaking case histories but rather sketchy summaries of the patient's symptoms, followed by verbose and erudite speculations on the part of the physician. The physician of today, reading some examples of the "Consilia," with their long-winded introductions and sententious sentences, feels lost in a strange world and thankful to later physicians who rescued us from it. The appendixes, which form about two-thirds of the book, contain valuable source material for the student of the history of medieval medicine.

This work will have a special appeal to the serious student of the history of medicine, interested in forming his own judgment of Ugo Benzi from consideration of the available source material. The book represents a high degree of scholarship combined with great industry and accuracy. It presents an interesting picture of medicine during the medieval period.

Chloroform: A Study After 100 Years. Edited by Ralph M. Waters. Cloth. $2.75. Pp. 138, with 35 illustrations. University of Wisconsin Press, 811 State St., Madison, 1951.

The investigation of the pharmacologic and toxicologic properties of chloroform represented in this treatise is of the high order of excellence that accompanied the introduction of cyclopropane into clinical use at the University of Wisconsin. It is characteristic of Dr. Waters' long and distinguished career at Wisconsin that this presentation should be based on a thorough and detailed search for the truth.

The effects of chloroform have been studied both in the laboratory and under carefully controlled conditions in the operating room. As is stated in the preface, the methods of investigation involve refinements of technique and observation that were not extant at the height of the controversy over this agent. The results are grouped largely according to the effects on three important organic systems: hepatic, renal, and cardiovascular. Histologic studies of animals and serial tests of hepatic function performed on patients undergoing operation indicate that the effects of a judicious administration of chloroform on the liver are of minor import. Comparison with other anesthetic agents yields no significant differences. The same conclusion is applicable to the effects of chloroform on the kidneys. It is apparent that the selection and management of patients and the skill of the surgeon and anesthesiologist are of more significance than the anesthetic agent employed.

Myographic tracings of heart and heart-lung preparations were utilized to indicate the depressant effects of chloroform on the myocardium. Emphasis is placed on the fact that the severity of depression increases as the rate of exhibition of the agent is accelerated. Electrocardiographic tracings from the intact dog revealed marked changes in cardiac rhythm and automaticity produced by deliberate overdosage or maladministration of the drug. Ventricular fibrillation occurred only rarely, however. It is of major interest that chloroform produced fewer instances of ventricular tachycardia and fibrillation after epinephrine than did cyclopropane. The effects of hypoxia enhance the toxicity of chloroform; it is emphasized that adequate oxygenation is a prime requisite in administration of this agent. The records and electrocardiograms obtained during clinical surgical procedures are

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

informative. In skillful hands, chloroform can be employed for periods of several hours without demonstrable detrimental effects. The satisfactory levels of blood pressure in the instances cited contradict the previous opinions that there is a progressive decline in pressure with the use of chloroform. However, cardiac irregularities did occur frequently in their series. The incidence of ventricular tachycardia is noteworthy, in 20 of 52 cases. The frequency of irregularities was greater after rapid exhibition of the agent, during deep anesthesia or periods of hypoxia, and in the presence of technical difficulties primarily involving the airway. Prompt withdrawal of the agent and inflation of the lungs with oxygen in the presence of serious arrhythmias or actual cardiac arrest produced rapid recovery.

The statistical evaluation by Dr. N. A. Gillespie of the data obtained from 1,111 records of administration of chloroform is enlightening. It is noteworthy that the patients anesthetized by chloroform were in general in less satisfactory physical condition than those induced with other agents during the same period of study. The severity of the surgical procedures and duration of anesthesia and operation were of an order comparable to similar instances in which other agents were employed. The semiclosed technique of administration was the more popular method utilized; intubation was performed in a high percentage of cases. The return of reflexes was more prompt than in a comparable group anesthetized by other agents. Statistical methods applied to procedures of similar nature in patients of like physical status revealed no significant differences in incidence of postoperative complications between the group anesthetized with chloroform and the group where other agents were employed.

The study of the effects of chloroform is augmented by a determination of the concentrations of the agent in the respired atmosphere and in the blood during clinical anesthesia. The method of estimation is based on the extraction of chloroform from both the blood and air with diethyl ether. Much credit is due to the investigators for (1) their observations during actual clinical trials, thus eliminating much of the uncertainty of transfer to human beings of results obtained in animals, and (2) their evolution of a simpler method of estimation of concentrations which yields results of a high degree of accuracy. The method can be readily adopted by other investigators.

It is not suggested that revival of the use of chloroform will be universal or that its employment should be widespread. Technical innovations in apparatus are needed to provide control of the gradual and relatively small changes in concentration necessary to produce safe chloroform anesthesia. Chloroform can be utilized with assurance, however, by reliance on good judgment in the selection of patients, by recognition of the contribution of the physical status to the surgical risk, and by observation of the rules familiar to every well-trained anesthesiologist: adequate oxygenation, careful attention to the patency of the airway, and full insight into the potentialities of the agent employed.

The investigations summarized in this treatise represent careful and detailed observations gathered over a span of eight years by well-qualified workers. The philosophical attitude tempering the spirit in which these investigations were undertaken could well be adopted by all concerned both in the evaluation and clinical usage of the many anesthetic agents and techniques now available for administration.

Connective Tissues: Transactions of the First Conference, April 24-25, 1950, New York, N. Y. Edited by Charles Ragan. Cloth. $3.25. Pp. 164, with 35 illustrations. Josiah Macy, Jr., Foundation, 565 Park Ave., New York 21, 1951.

The transactions of this conference comprise one of a series of conferences of experts and their reports on a variety of basic subjects, basic in themselves and basic to clinical medicine. The purpose of these projects is amply expressed in the introductory remarks of Dr. Fremont-Smith: "With the accelerating rate at which new knowledge is accumulating and with the increasing recognition that nature is of one piece, it becomes evident that the continued isolation of the several branches of science from one another is a serious obstacle to scientific progress. Nowhere in science is the need for 'combined operations' more evident than in medicine. Today, to be effective, medical research and practice must embrace data from all of the disciplines."

At this conference, five studies were presented on various phases of investigation of the connective tissues—structure and function, pathology, chemistry (polysaccharides), enzymatically modified ovalbumins, and the effect of corticotropin (ACTH) and cortisone. Each of these is a concise presentation and summary of the subject by an outstanding contributor. Each paper, however, is merely the touchstone for the real object of the conference, a spirited and analytical round-table discussion of the topic and its ramifications and of the comments they provoke. The reader is given the spontaneous discussion and crossfire of impromptu remarks by distinguished contributors to the various disciplines related to the subject, especially those from the basic sciences. There are areas of agreement, wholesome criticism and frank dissent. Lines of certainty in our information regarding the connective tissues are marked out, but blank spaces are made to emerge even more emphatically and shown to preponderate in this relatively new field of knowledge (or lack of it).

These conferences, with their apparently verbatim reports, are an inspired innovation that should prove a real influence in encouraging those engaged in the "basic sciences" to become more clinically minded and to interest clinicians in the newer "basic" orientations. If this volume is typical, these publications may well be termed "Interim Reports on Medical Advances in the Making." The essayists and discussors have made commendable efforts to crystallize the known and the unknown regarding a very difficult subject. The book is clearly printed and well edited, except for a few misprints that remain. For investigators in this field as well as those with a collateral interest in connective tissue, this little volume almost becomes a necessity. There is little information here that lends itself to direct clinical application. However, for the clinician who remains a student and for the student who likes to explore beyond conventional assignments, this volume will prove a source of enlightenment and stimulation.

The Heart and Blood in the Bible. By David I. Macht, M.D., F.A.C.P., Litt.D. Cloth. $2. Pp. 79. Author, Sinai Hospital of Baltimore, Inc., Monument St. and Rutland Ave., Baltimore 5, Md., 1951.

The author is widely known as one well equipped with medical knowledge and well versed in Hebrew philology and the Old Testament, which term he uses as synonymous with "the Bible." The work cites or quotes a number of specific instances, intended to exhibit ancient Hebraic knowledge of the heart and blood functioning—the first eight chapters being on the sudden deaths of Nabal, Eli, Sisera, and others, the remaining 10 having such interesting titles as Syncope, Angina Pectoris, Pathologic Anatomy, and Bones as Blood Forming Organs. However, in the great majority, the interpretations are found to be so far fetched that they carry but little conviction as to the meaning assigned to them. Jael's murder of Sisera, for instance, is thought to have taken place when he was comatose from a supposed stroke induced by a combination of fatigue, overindulgence in food, and passion. (The author here cites four passages in the Talmud asserting that Jael was criminally assaulted by her guest.) Again, Jeremiah's "my heart pains me" seems far indeed from a convincing reference to angina pectoris. Likewise, "the oppression of the heart" ("sorrow of heart" in the Authorized Version) can hardly be accepted as a vivid description of an anginal attack worthy of Thomas Brunton (1867). Especially disappointing is the rather lengthy attempt to connect such expressions as "pleasant words are health to the bones" (Proverbs **16,** 24) and "make fat thy bones" (Isaiah **58,** 11). If active at all, increase in fat would depress blood cell formation in the marrow.

These are but a few, and by no means the most extreme, of the many overdrawn examples of inadvertent prescience, to use the author's phrase.

Though obviously written for laymen, the unity and balance of the text are marred by unnecessarily long excursions into modern physiology; these not only are out of place in a work of this kind but sometimes are of questionable accuracy. Errors of composition, spelling, and the like are too frequent, even for a privately printed book (16 errors in 79 small pages).

The author is a pharmacological investigator of ability and an interesting writer on historical aspects of his field. However, it is doubtful, to say the least, that his standing as an author will be enhanced by this production.

V 14
1951

Conference on Problems of Aging: Transactions of the Twelfth Conference, February 6-7, 1950, New York, N. Y. Edited by Nathan W. Shock, Chief, Section on Gerontology, National Heart Institute, National Institutes of Health, Bethesda, Md. Cloth. $3.50. Pp. 215. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, 1951.

This volume records a series of five informal sessions covering several areas in the field of gerontology: the intrapersonal aspects, presented by Lawrence K. Frank; the interpersonal aspects, by Robert J. Havighurst; the relation of gerontology to clinical medicine, by Edgar J. Stiglitz; the psychopathological aspects of aging, by William Malamud; and the economic aspects of human gerontology, by Charles V. Kidd.

The major goal of the conference was to establish communication between the various disciplines, by discussion rather than formal presentations. This plan is admirably carried out, and in general the spirit of free exhange of ideas is well preserved. Each subject was presented with the idea of evoking discussion which is developed by a small group of participants representing the fields of biology, biochemistry, physiology, pathology, psychology, sociology, education, economics, internal medicine, and psychiatry.

One is impressed with the emphasis throughout the entire conference on our lack of information and knowledge concerning the personal and social adjustment of the older person. The participants stress that until more attention is given to understanding the motivations and goals of persons between the ages of 20 and 60 it is not likely that we will have available the knowledge that will permit proper understanding and the development of procedures necessary to deal with the problems of aged persons. The current views regarding economic and social aspects of retirement plans are discussed.

The Macy Foundation has rendered a valuable service in making the proceedings of the conference available to the public. Furthermore, they have set a pattern for conferences to be developed around the idea of crossfertilization of scientific disciplines and the meeting of minds of persons representing several professional fields to correlate various viewpoints on one broad subject.

147
951

Fever Therapy. By H. Worley Kendell, M.D., F.A.C.P., Professor of Physical Medicine and Rehabilitation, University of Illinois Research and Educational Hospitals, Chicago. Publication number 80, American Lecture Series, monograph in American Lectures in Physical Medicine, edited by W. A. Selle, Ph.D., Professor of Biophysics, University of California Medical School, Los Angeles. Cloth. $2.25. Pp. 101, with 15 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W. Toronto 2B, 1951.

This monograph is an authoritative and extremely valuable contribution on the subject of fever therapy. Technic, principles, complications, and therapeutic indications are carefully and completely discussed. The illustrations are excellent; the subject is scientifically presented; and the material is well documented.

Dr. Kendell is a leading authority on this subject; he has had wide experience in the employment of fever therapy and the combination of fever therapy and chemotherapy. Both the author and the publisher have worked efficiently to complete this excellent and informative contribution to the literature of physical medicine. This textbook is highly recommended as a concise guide for any physician who wishes to employ fever therapy in his practice.

Hospital Accounting: Principles and Practice. By T. Leroy Martin, Ph.D., C.P.A., Associate Professor of Accounting, Northwestern University, Chicago. Cloth. $4.75. Pp. 230. Physicians' Record Co., 161 W. Harrison St., Chicago 5, 1951.

The material presented in this volume presumes a fundamental knowledge of general accounting and is written for the use of the hospital administrator, the hospital comptroller, and the bookkeeper as a reference work, and for the accountant who may be called on to install a system of accounting for the hospital.

In the first of 15 chapters, all of which are appropriately captioned and subindexed for quick reference, the author introduces the reader to the organizational aspects of the hospital corporation and outlines the operating and financial structures of the hospital. The early chapters are devoted to fundamental procedures with regard to their particular application to hospital accounting. Continuing in sequence are chapters on the classification of services and expenses, on sales or services, on prorating expenditures, on the handling of surplus and reserves, endowments, bond issues, investments and income therefrom, and on the preparation of the profit and loss statement and the balance sheet. The important subject of cost computation is treated in closing chapters. There are practice assignments, which together with problems and questions supply sufficient practice work on every type of transaction encountered in hospital accounting.

The book is written in a clear and concise manner and contains 38 illustrations of specimen accounting forms, and illustrations of documents creating actual endowments and gifts. The hospital administrator will acquire a good understanding of indirect expenses, budgets, and financial statements by reading this book. Discussions and illustrations in the text are limited to voluntary not-for-profit hospitals of the type of most hospitals today.

Nouveau traité d'électro-radiothérapie. Comité de rédaction: Dr R. Coliez, Pr A. Desgrez, Pr P. Lamarque, Pr A. Strohl. Secrétaires généraux: A. Devois, H. Fischgold, R. Angammarre. Tome I: Généralitiés physiques et biologiques. Tome II: Système nerveux, glandes endocrines, os—articulations, sang et ganglions, dermatologie. Tome III: Voies aériennes, tube digestif, voies urinaires, organes génitaux. [Formerly Delherm and Laquerrière's "Traité d'électroradiothérapie."] Cloth. 16000 francs. Pp. 1068; 1069-2022; 2023-2775, with 1006 illustrations. Masson et Cie, 120 boulevard Saint-Germain, Paris 6e, 1951.

This book succeeds the text on treatment previously published by Delherm and Laquerrière. It describes the major changes in accomplishments that have occurred recently in the science of physics as related to medicine. Volume 1 is devoted to general considerations of physics and biology. Volume 2 considers the employment of "electroradiotherapy" in diseases of the nervous system, endocrine glands, bones, joints, blood, and hematopoietic organs, and in diseases of the skin. Volume 3 discusses various forms of electrotherapy and radiotherapy as employed in diseases of the pulmonary tract, digestive tract, urinary tract, and genital organs.

Electrodiagnosis, employment of various forms of electrical current for therapy, and use of infrared and ultraviolet rays are discussed, and there is a chapter on ultrasonics as well as a considerable discussion of neutron therapy. Many outstanding French medical authorities on various phases of electrotherapy and radiotherapy have contributed chapters to this exhaustive presentation. This textbook is so extensive that it is impossible to discuss it in detail. Suffice it to say that all phases of electrotherapy and radiotherapy as employed in France are covered thoroughly in an up-to-date and authoritative fashion. The book can be recommended to all physicians interested in electrotherapy and radiotherapy.

Electron Microscopic Histology of the Heart: An Application of Electron-Microscopic Research to Physiology. By Bruno Kisch, M.D., Research Associate in Cardiology, Mt. Sinai Hospital, New York City. In collaboration with Joan M. Bardet. Paper. $5. Pp. 106, with illustrations. Brooklyn Medical Press, Inc., P. O. Box 99, Cathedral Station, New York 25, 1951.

This booklet is actually a reprint of three papers previously published in the *Journal of Experimental Medicine and Surgery*. The limitations and errors inherent in this method are discussed at length. It is pointed out that considerable work is necessary before the electron microscope becomes a practical tool in the field of cardiac research. However, the author believes that this technique will eventually be of value in the fields of physiology, pharmacology, and pathology. The book is profusely illustrated with photomicrographs of various elements of the heart and blood of the mouse. The observations contained in this book are at best only preliminary, so that no conclusions can be reached from these data. This booklet appears to have been published prematurely. The author should have waited until he had more conclusive data to present. This book is of no value to the practicing physician. It might be of some interest to the research worker on the more intimate details of the microscopy of the heart.

QUERIES AND MINOR NOTES

WOOD-BURNING FIREPLACES

TO THE EDITOR:—*In relation to carcinogenic agents, I would like to ask whether investigations have been made of the soot and smoke of wood-burning fireplaces. Is the constant use of a wood-burning fireplace considered a hazard?*

Edward J. Kempf, M.D., Long Island, N. Y.

ANSWER.—The carcinogenic properties of soots, domestic, industrial, and commercial, vary with the material from which soot is obtained by incomplete combustion, as well as with the method of production, i. e., temperature and availability of oxygen. It may be expected, therefore, that soot accumulating in wood-burning fireplaces is no exception to this rule, although there is no definite evidence on this point in regard to man. The experimental evidence supporting such a view is not conclusive but is highly suggestive (Sulman, E., and Sulman, F.: Carcinogenicity of Wood Soot from the Chimney of a Smoked Sausage Factory, *Cancer Research* **6**:366, 1946). There are no published data on the presence of known carcinogenic hydrocarbons in wood soot obtained from fireplaces. It is not felt that the constant use of wood-burning fireplaces represents a health hazard if the draft is adequate and smoke does not escape regularly in unusual amounts into the room.

PICA

TO THE EDITOR:—*A boy, 3 years old, with a congenitally displaced vertebra is under the care of an orthopedic surgeon. He is a cretin and is receiving thyroid. He has a craving for coffee grounds. He takes a spoon and helps himself to the grounds in the coffee pot. Is there anything injurious in this?*

M.D., Michigan.

ANSWER.—There is no known nutritional factor in coffee grounds that cannot be obtained from other common dietary ingredients. While it might be difficult to prove there is enough caffeine or other noxious substances in coffee grounds to injure the child, it would be difficult to find any authority on nutrition who would recommend coffee grounds as a basic foodstuff.

Children have the habit of eating bizarre substances, and this perverted appetite is known as "pica." Among the substances thus ingested may be dirt, sand, plaster, wood, or coal, which children can pick up from the floor; they may also pick the fuzz from cloth and blankets or chew the paint from toys and furniture.

HYPERTRICHOSIS

TO THE EDITOR:—*A white man, aged 54, father of one child, is troubled with excessive growth of hair on the arms, legs, chest, and back. The hair is as thick and heavy as that on the average scalp and varies from 3 to 4 in. in length. Can anything be done about this? His physical examination is entirely normal. The electrocardiogram and basal metabolism test are within normal range, the Wassermann test is negative, and the sedimentation rate is normal.* *M.D., Wisconsin.*

This inquiry was referred to two authorities, whose respective replies follow.—ED.

ANSWER.—Unfortunately, there is nothing to be done in a situation such as this, other than to shave or to use depilatories. Commercial chemical depilatories, if used cautiously and not to excess, might be the most practical method of treatment in this case.

ANSWER.—The only suggestion that is offered is that of shaving or using a depilatory, both of which, of course, become quite a nuisance. There is no other treatment.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

NOCTURIA

TO THE EDITOR:—*I am 67 years of age and have marked generalized arteriosclerosis. For years nocturia has occurred two to three times nightly. During the last three months this has occurred about five times nightly with large amounts of urine. During the day I sometimes urinate only every five hours. The findings are low specific gravity, of 1.010 on the average, a trace of albumin, rare casts, and a few red blood cells in the high power field. What explains the difference between the frequent micturition at night and a fairly normal situation during the day? I have my main meal and drink coffee just before retiring. However, even when I drink little water and no coffee before retiring frequent micturition still occurs. Please explain and suggest therapy.* *M.D., California.*

ANSWER.—Nocturia may be due to latent edema of cardiac or renal origin because of delay in elimination of water during the day. It may also be caused by an irritable bladder secondary to prostatic hypertrophy. Excessive intake of fluids during the evening hours is a common cause of nocturia. The absence of frequent urination during the day speaks against active inflammation of the lower urinary tract. The water content of a meal ingested shortly before retiring may be a factor, even when coffee is omitted. It is not healthful to eat a main meal at bedtime at age 67.

As to treatment, one would suggest a change in dietary habit, reduction of fluid intake during late afternoon and evening hours, and careful examination for signs of latent cardiac insufficiency or prostatic hypertrophy. Appropriate treatment will follow from the data obtained.

V 14
1951

SLOW SEDIMENTATION RATE AND REPEATED DONATIONS OF BLOOD

TO THE EDITOR:—*What will cause a falsely slower erythrocyte sedimentation rate? Can anything in the technique itself cause a slower sedimentation rate? Often I get a much slower sedimentation rate than I expect clinically. Will harm result from administration of 500 cc. of blood every three months? I heard a doctor say that he read of a case of aplastic anemia resulting therefrom. A technician at a local hospital says that the head of the laboratories advised against the technicians' giving blood because it lowered their resistance.* *M.D., California.*

ANSWER.—The factor most likely to produce slowing of the sedimentation rate is an elevation of the hematocrit. In the Wintrobe method, this factor can be corrected by use of the Hynes-Whitby correction chart (Hynes, M., and Whitby, L. E. H.: Correction of the Sedimentation Rate for Anemia, *Lancet* **2**:249, 1930; Whitby, L. E. H., and Britton, C. J. C.: Disorders of the Blood, London, J. and A. Churchill, Ltd., 1950, p. 678; Ham, T. H.: A Syllabus of Laboratory Examinations in Clinical Diagnosis, Cambridge, Mass., Harvard University Press, 1950, p. 145), which is more satisfactory than the original one published by Wintrobe.

Concerning the donation of blood by normal subjects, there is no evidence that this is a harmful procedure, provided the level of hemoglobin is normal as determined before each donation. If blood is given frequently, then iron (ferrous sulfate) should be administered orally if there is a decrease below normal in hemoglobin (Bateman, J. C.: Treatment of Chronic Blood Donor Anemia, *Ann. Int. Med.* **34**:393 [Feb.] 1951). There is no evidence to suggest that the bone marrow will become aplastic because of greater production of hemoglobin and red cells. It is emphasized that patients with chronic hemolytic anemia may live a full life span with a continued and decided increase in production of hemoglobin and red cells, and with hyperplasia of the marrow for their lifetime (Whitby and Britton; Ham; Castle, W. B.: Disorders of the Blood, from Sodeman, W. A.: Pathologic Physiology: Mechanisms of Disease, Philadelphia, W. B. Saunders Company, 1950, pp. 355-464).

DEAFNESS FOLLOWING A BLAST

To the Editor:—*Please advise if any advance has been made in care of inner ear injury due to blast. Would cortisone be of any material value?* *Robert L. Feldmann, M.D., York, Pa.*

Answer.—Patients suffering from deafness following a blast in air often experience improvement in hearing and sometimes complete recovery of hearing in the first three to six weeks following the injury. During this period there is healing of the conduction system (ear drums, ossicles), when they have been injured, and recovery of sublethally injured sensory and neural elements in the inner ear. Deafness that remains after two months is due to degeneration of hair cells and spiral ganglion cells in the inner ear, and no known therapy will replace them. It follows that cortisone would be of no value in treating the inner ear deafness that follows a blast.

RETINITIS PIGMENTOSA

To the Editor:—*Please advise me as to the treatment of a woman with retinitis pigmentosa that has remained quiescent for 10 years. After an acute mental episode 10 years ago the patient was given acetylcholine bromide, which was changed to the chloride when the bromide could not be obtained. Now the latter has also been taken off the market. Can anything be done to lessen the probability of her becoming completely blind like her mother? Her vision is now right 20/20, left 20/40 but subject to variations that suggest central encroachment. She is 57. The menstrual history has been slightly irregular. She has two adult sons. There is nothing else in her history to suggest Laurence-Moon-Biedl-Syndrome.*

M.D., Sacramento, Calif.

Answer.—Unfortunately, retinitis pigmentosa is a chronic, progressive degenerative disease for which there is no adequate therapy. Vasodilators have long been favored for the empirical management of the condition, because of the marked arteriolar constriction which, together with the pigment disturbance, characterizes the condition. There is no valid evidence that vasodilation or any other form of therapy has any effect on the gradual visual deterioration. The condition frequently shows long spontaneous periods of inactivity, and whatever medicament is being used at this time may be credited with an efficacy it does not possess.

VARICOCELE

To the Editor:—*Has a large varicocele ever been proved to contribute to sterility in a male? Could the pooling of blood in the scrotum alter the scrotal temperature and be detrimental to spermatogenesis in the apparently normal right testis?* *James H. Gray Jr., M.D., Friendship, N. Y.*

Answer.—It has often been assumed, not unreasonably, that varicoceles may disturb the testicular circulation severely enough to interfere with spermatogenesis, but this idea is not proved. Evidence for or against it might be obtained from semen studies and testicular biopsies. If the wearing of a light suspensory is followed by improvement in the semen, a cause-and-effect relation would appear probable. There is no doubt that large varicoceles of long duration are frequently associated with small flabby testis in which irreversible changes have taken place.

It seems hardly likely that pooling of blood in the left pampiniform plexus could generate enough heat to affect the right testis. A biopsy of that testis would help to identify the cause of the patient's poor semen.

HOT FLASHES IN PRIMIGRAVIDA

To the Editor:—*What might be the etiology of hot flashes occurring in a 19 year old primigravida entering the third trimester of pregnancy?* *M.D., Minnesota.*

Answer.—Hot flashes in pregnancy are uncommon and difficult to explain. These symptoms are usually pathognomonic of the climacteric. They are vasomotor in origin and are brought about by ovarian failure and estrogen deprivation. It is possible that some other factor may cause these vasomotor phenomena in pregnancy.

COMBINED ESTROGEN AND ANDROGEN THERAPY

To the Editor:—*What is the consensus as to the use of preparations such as "test-estrin" (alpha-estradiol ad testosterone) in a patient 45 years old, who had a panhysterectomy two years ago. The surgical menopausal symptoms have not been severe—probably owing in part to the administration of 20,000 units of estrone weekly.* *C. L. Attaway, M.D., Ville Platte, La.*

Answer.—Combined estrogen and androgen therapy for the menopause has gained vogue recently, on the theory that the side effects of estrogen therapy may be avoided and the patient given an additional feeling of well-being. There is no gainsaying the fact that androgens do give the patient a feeling of increased strength and well-being. The androgens also reduce the incidence of breast turgidity, but these benefits are not gained without additional side effects. Combined therapy does not materially reduce the incidence of estrogenic bleeding but does reduce the amount. Increased libido, hirsutism, alopecia, acne, and hoarseness are untoward effects directly resultant from conjoint androgen use. Therefore, combined therapy, while it may circumvent certain of the estrogenic side effects, carries with it additional unpleasant side reactions. The best therapy for the case described would seem to be a continuation of estrogenic therapy in the smallest dose necessary to relieve symptoms. No estrogen should be given continuously and rest periods without therapy or with sedation should be gradually lengthened to avoid estrogen dependence.

URETHRAL CARUNCLE

To the Editor:—*A 45 year old woman has a painful, deep red, extremely tender area surrounding the external urethral meatus, present for several years and diagnosed as urethral caruncle. Cauterization with silver nitrate and other local measures have given only temporary relief. A gynecologist and a urologist failed to help her. Do you know of anything that might cure this condition?*

J. M. Alford Jr., M.D., Greenwood, Miss.

Answer.—There are several lesions of the external urethral orifice that are suggested by the description, namely, polyps, caruncles, prolapsed urethral mucosa and carcinoma. Ordinarily, the urethral caruncles are most painful and have a broader base than do the polyps. The prolapsed urethral mucosa ordinarily is edematous and often rings the urethra. Carcinoma may be present either alone or in one of the above lesions. Biopsy of the lesion should be done. If the lesion is not malignant it should be either cauterized with live cautery or removed surgically. One should avoid making the urethra too snug. Many of these lesions are very painful.

DEAFNESS IN A CHILD

To the Editor:—*A girl, 3, has been given a diagnosis of otosclerosis. When would the fenestration operation be indicated in this case? The child is deaf and cannot speak.*

Lothar Wirth, M.D., Rensselaer, N. Y.

Answer.—To make a diagnosis of otosclerosis it is necessary to obtain accurate air and bone conduction audiograms. This is almost impossible in children under the age of 5, and, moreover, otosclerosis is rarely seen in children under the age of 10. A few fenestration operations have been performed on children under 10 with satisfactory results, the youngest being 7.

This 3 year old girl should be retested when she is old enough for reliable air and bone conduction audiograms to be obtained, which is around the age of 5 or 6. Should she prove to be suitable for the fenestration operation, it could then be considered.

TESTOSTERONE

To the Editor:—*Would testosterone be contraindicated in a man of 50 with hypertension (essential)?* *M.D., Arizona.*

Answer.—Hypertensive disease is not a contraindication to the administration of testosterone if there are definite indications for its application.

147
951

LEAD AND VINEGAR

To the Editor:—*Please send me the following information: 1. "Differential Diagnosis," by French, lists testing for lead by allowing a concentrated drop of urine to fall in a long column of ammonium sulfite solution, with a white streak resulting if the reaction is positive. How sensitive is this test in terms of milligrams per 100 cc.? 2. What harm does vinegar do in the human body, if any?*

M.D., California.

Answer.—1. The test mentioned has no quantitative value in the detection of lead in urine. Since all urine contains some lead, qualitative tests may be without significance. Other chemical or colorimetric tests, such as the dithizone test, are valid for quantitative lead. 2. Vinegar is naturally or artificially flavored acetic acid, commonly ranging between 4 and 6%. Although it is ordinarily harmless, mild gastritis or enteritis may be caused by it. It is absorbed only in the form of salts and, as such, imposes some burden on the alkali reserves. Much dilute vinegar is consumed as a beverage in European countries under such names as "posca." Some persons find the high acid wines of Europe highly irritating to the stomach and upper intestinal tract. To an uncertain degree imbibed vinegar accelerates the flow of gastric and intestinal juices. To a limited extent dilute acetic acid serves usefully in urinary bladder lavage in cystitis. Vinegar, or dilute acetic acid, is a well-known spermatocide. Numerous deaths from concentrated acetic acid, an active caustic, have been caused by erroneous belief that all acetic acid is vinegar.

REACTION TO FORMALDEHYDE GAS

To the Editor:—*An attendant in our pathology department has conjunctivitis and bronchitis that appear related to exposure to formaldehyde fumes. A World War II type of gas mask gives some relief when he uses diluted solutions of formaldehyde but is not effective when he is handling concentrated solutions. A chemical hood is not available. We would appreciate suggestions as to other means of control.*

Robert B. Marshall, M.D., Lakewood, Ohio.

Answer.—The difficulty here confronted may result from a "spent" cannister. No cannister has an unlimited lifetime. Otherwise, there are numerous respirators and masks credited with capacity to protect against formaldehyde. If the eyes require protection, a mask is essential; if only the respiratory tract needs safeguarding, a respirator will suffice. As examples, the specific products of one manufacturer are here mentioned: Mine Safety Appliances Company, Pittsburgh, Pa., all vision mask no. ED15761 with GMA cannister and/or chemical respirator alone no. CR44158 with GMA cartridge. In most pathological laboratories compressed air lines are available. If they are available and with due concern for low air pressure, an air line respirator mask might be employed. A few persons acquire such sensitivity to formaldehyde that minute traces excite manifestations. More often this is limited to skin affections.

LOSS OF HAIR IN YOUNG BOY

To the Editor:—*A 4 year old Caucasian boy is bald-headed except for some very light and widely scattered wisps of hair. The child, while still in the hospital nursery, became infected with impetigo of the scalp and lost all his hair. He has never grown any since. He also had rickets; evidence of this is still present, as seen in the square or boxlike shape of the skull and the prominent parietal bosses. The patient appears normal in other respects. Do you think high doses of vitamin B complex would be of any avail?*

Reino F. Hill, M.D., Kennedy, N. Y.

Answer.—Ordinary impetigo involves only the most superficial layers of the skin and, unless it is complicated by a secondary, deep-seated infection, it should not cause loss of hair. The absence of scars in the scalp indicates that there probably was not such secondary infection and the presence of wisps of hair suggests that this child may have a congenital ectodermal defect. If so, therapy with vitamins would have no effect.

X-RAY THERAPY OF TONSILS

To the Editor:—*How effective is x-ray in "removing tonsils"? It seems to me that any radiation capable of destroying tonsil tissue would damage surounding and adjacent tissue.*

P. T. Kilman, M.D., Malakoff, Texas.

Answer.—X-ray therapy of tonsillar and other pharyngeal lymphoid tissue does not depend on the concept that this tissue will be removed or destroyed. It has long been known that lymphoid tissue is susceptible to the action of x-rays. The use of this medium is followed in a satisfactory number of instances by relief of symptoms, notably attacks of inflammation. Some shrinkage of the conglomerate lymphoid mass may also take place. This is seen especially in the case of the adenoids, when nasal obstruction and mouth breathing may be much relieved by x-ray therapy.

The dosage required for a satisfactory result is about 300 r to a side given in doses of 100 r at weekly intervals, for three sessions. A much larger dose (300 r daily) in the case of malignant lesions is frequently given for as much as 40 consecutive days without "destroying" adjacent normal tissue.

In the opinion of many careful clinicians, x-ray therapy of enlarged and diseased tonsils has a proper and useful place. Children especially may be treated by this method when physical condition, age, or season do not permit operation. X-ray therapy may be used before, after, or in close conjunction with surgery, and its use does not make surgery more difficult when proper indications arise later for operation.

PAINTING DURING PREGNANCY

To the Editor:—*Should a pregnant woman be allowed to paint?*

Robert S. Srigley, M.D., Hollis, Okla.

Answer.—It is not clear whether the correspondent refers to painting as an artistic pursuit or as a utilitarian project, in the sense of painting an occasional chair or closet. In either case, however, there would be no risk of lead poisoning and no more harm than in any other moderate and not too tiring muscular activity. It is quite certain that the correspondent was not thinking of the woman as a professional house painter, for in this vocation there is still a risk of lead poisoning unless proper precautions are taken, such as careful cleansing of the hands and perhaps the use of gloves.

V 147
1951

CORTISONE IN EALES' DISEASE

To the Editor:—*Is there any evidence to support use of cortisone in the syndrome referred to as Eales' disease?*

Emery E. Royce, M.D., Douglas, Ariz.

Answer.—McLean, Gordon, and Koteen (*Tr. Am. Acad. Ophth.* **55**:565 [May-June] 1951) used cortisone systemically in two cases of Eales' disease without significant improvement.

TALCUM IN PERICARDIAL CAVITY FOR CORONARY OCCLUSION

To the Editor:—*I was interested in your reply to Dr. Trachtman, in the June 23, 1951, issue of* The Journal, *concerning the use of talcum in the pericardium as a method for treating angina pectoris. The following facts might be of interest to you.*

First, talcum is not used. The material used is magnesium silicate, which is U. S. P. talc. Ordinary talcum contains many adulterants and is not recommended for such use. Second, the statement that there are "variable degrees of improvement" is slightly misleading. The figures published by me show that 85% of the patients show a minimum improvement of at least 50%. Third, the work of Schildt, Stanton, and Beck (Ann. Surg. **118**:*38 [July] 1943) *quoted in the reply was not actually a repetition of our experiments. In all of our published work (experimental and clinical) we have repeatedly stated that the amount of talc used was 2 drams (8 gm.). In a series of experiments, Beck and his co-workers used (so stated in their publications) 3 gm. of talc and did not find the same results which we have found. Is this surprising?*

S. A. Thompson, M.D.,
850 Park Ave., New York 21.